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EDITOR'S

COMMENTS

THIS issue of *The American Neptune* begins with a long discussion of the present state of research concerning *The Spanish Armada* whose four hundredth anniversary was just concluded this last year in a flurry of books, articles and celebrations. Careful reading of Douglas Knerr's contribution entitled *Through the "Golden Mist": A Brief Overview of Armada Historiography* shows how attitudes toward this great fleet have changed over the years—especially since the Spanish side of the story has begun to be more carefully examined and evidence from underwater wrecks of sunken Spanish warships has reached scholarly maritime circles.

This is followed by Donald D. Hogarth's article *The Emanuel of Bridgwater and Discovery of Martin Frobisher's "Black Ore" in Ireland* which is valuable since it reveals how in the same Elizabethan Age there was a fascination with possible sources of gold. This fascination contributed to voyages to North America by Elizabethan sailors at the same time that the defeat of the *Armada* made such voyages much safer in Atlantic waters.

We then turn our attention to Edward Kenneth Haviland's *American Steam Navigation in China 1845-1878* which in much detail gives us a clear picture of the American ships which operated in Chinese waters during this period when Westerners tended to control not only Chinese contacts with the outside world, but even navigation on great Chinese rivers like the Yangtze.

Our fourth contribution consists of an article by Lawrence Carroll Allin entitled Telos, *the Last American Brig and Bangor River's "Class of '83."* This charts the last phase of Bangor's role as a shipbuilding center for those wooden vessels which Maine had constructed for so many centuries. This was especially so during the middle and late years of the nineteenth century when Maine forests still provided abundant ship timber.

Next we have Ralph W. Dexter's *Essex County and the Development of American Marine Biology*. In this article the author explains how important this coast of Massachusetts was to the development of scientific knowledge of the sea—a knowledge that the late-lamented Rachel Carson was to use to help alert the public to the dangers of polluting the air and the seas on our doorsteps.

Last of all we have a controversial article by W. M. P. Dunne *An Inquiry into H. I. Chapelle's Research in Naval History*. This has been specially reviewed by a dozen readers, but will still raise serious questions pro and con among those who knew Chapelle. We felt, however, it needed to be aired.

We close then with a number of book reviews, and a note of profound regret that this issue is being completely handled by a new press, Heffernan Press of Worcester, in place of Anthoensen Press of Portland, Maine which for almost fifty years since our first issue in 1941 has so splendidly helped us present the world of maritime history to a wide public.

ARCHIBALD R. LEWIS

Salem, MA

Through the "Golden Mist": A Brief Overview of Armada Historiography

DOUGLAS KNERR

EVERY so often in history an event so influences the human spirit that it quickly becomes shrouded in myth and legend. The defeat of the Spanish Armada is one of history's best examples. Described as "the beginning of Armageddon" or "the struggle between light and darkness," the story of the Anglo-Spanish conflict has inspired many writers, good and bad alike. The resulting body of historical literature covers virtually all facets of the campaign with a certain reverence. From contemporary accounts to recent scholarship, authors agree that it held significance for future generations and that it altered the course of history. The quatercentenary of the confrontation provides an opportunity to assess some of the most significant contributions to Armada scholarship.

Although many writers have been drawn to the events of the Armada during the last two centuries, remarkably few good contemporary sources exist. An original account of the battle can be found in a letter from Vice Admiral John Hawkins to Principal Secretary Walsingham on 21 July 1588. Written as the English began to chase the Armada through the North Sea, it provides only a brief summary of events and contains no detail on tactical maneuvers. Another account, from the pen of Lord Admiral Charles Howard to Walsingham dated 7 August reveals little more than the actions of Howard's own vessel.[1]

The first attempt to provide a complete account of events can be found in a document entitled "Defeat of the Spanish Armada anno 1588, a Relation of Proceedings." Apparently written for Howard, this was not confirmed until an Italian translation of the document dedicated to Howard was discovered in the British Museum in the 1890s.[2] Until the discovery little was known about the original document since the translation contained no date, title, or signature. Nevertheless, many subsequent histories used it as a major source, and scholars came to recognize the "Relation" as an official narrative of the campaign.

However, the work of naval historian Sir Julian Corbett in the late nineteenth and early twentieth centuries revealed many errors in the "Relation." naval terms were frequently misused, ships made to sail impossible courses, and Howard glorified to the exclusion of other important players, especially Sir Francis Drake.[3] Although Corbett made no attempt to hide his favoritism for Drake, his analysis provided important information on the reliability of the document.

The Italian translation of the "Relation," dated 15 April 1589, was prepared for Howard by Petruccio Ubaldino, a Florentine writer living in London. Ubaldino had taught Italian and translated works for the Court periodically since the end of Henry VIII's reign. Interestingly, his translation of the "Relation" added an apology for Drake's actions in abandoning his place as the lead ship in the English fleet after the battles off Plymouth. Corbett suggested that Drake may have had some influence over the translation since he and Ubaldino had met at Court, and because Drake had asked him to write an Italian history of the campaign.[4]

Later scholarship revealed another twist in the story. At Drake's urging, Ubaldino produced a second, longer narrative completed some four months after the first. Drawing from the "Relation," and adding information from sources favorable to Drake,

1. John K. Laughton, ed., *State Papers Relating to the Defeat of the Spanish Armada*, 2 vols. (London, 1894), vol. 1, p. 358, vol. 2, p. 55.

2. British Library, Cotton Ms. Julius, F. X. 6 leaves, folios 95-101, formerly folios 111-117.

3. Sir Julian Corbett, *Drake and the Tudor Navy*, 2 vols. (London and New York, 1898), vol. 2, pp. 412-13.

4. Ibid., pp. 414-15.

Ubaldino drafted in Italian a more detailed and balanced account which corrected some of the discrepancies found in the first document. In 1590, Ubaldino offered the manuscript to Sir Christopher Hatton, then Lord Chancellor, as a New Year's gift. First used by Corbett, Ubaldino's second account, entitled "Comentario . . . L'Anno 1588," lay unnoticed in the British Museum until the late nineteenth century.[5]

Despite its corrections of the "Relation," Ubaldino's second narrative never received recognition at the time as the most accurate contemporary account of the Armada campaign. Instead, the "Relation" became the most frequently used source until Corbett revealed its errors. This occurred primarily because an English translation of the "Relation" entitled *A Discourse concernye the Spanish Fleete invadinye Englande in the year 1588,* published in 1590, gained a wide exposure throughout the country. Although Ubaldino himself condemned the "Relation" after he completed the "Comentario," the first version, through the English translation, influenced generations of historians.[6]

The narrative of both the "Comentario" and the *Discourse* advanced a reverence for the English cause. God surely favored the English, inspiring brave seamen in defense of the realm. The victory confirmed not only the English religion, but also the extraordinary courage of the English naval officers. If, as Ubaldino suggested in the "Comentario," it was "King Phillip's zeal to change the religion of England and introduce the Roman faith," England need not have worried. For the combined forces of the Lord Admiral Howard and Sir Francis Drake, a "politic and Christian union," happily secured a "certain and inevitable victory" for England.[7]

William Camden's account of the Armada in his *Annales* relied heavily on the *Discourse,* and he used these themes as a backdrop for a more detailed examination of the battle. He offered a nationalistic tone, and found great joy in relating how, in his words, an inferior naval force managed to crush the Armada, "so arrogantly named Invincible."[8] Camden was also the first to assert that the efforts of armed private merchant vessels which supplemented the English fleet turned the tide against the Spanish forces. He wrote: "the youth of England, (leaving their Parents, Wives, Children, Kindred, and friends, out of their dearer love to their countrey) with ships hyred at their own charges, joined themselves in great numbers with the Fleete, with generous alacrity, and incredible courage."[9] Later scholarship, especially Corbett's work, challenged this interpretation, yet Camden's version remained unquestioned until the early twentieth century.

Another issue raised by Camden became an important historiographical debate. His portrayal of the Duke of Medina Sidonia as a bumbling, amateur seaman unable to adjust his strategy to the changing conditions of battle has often come under attack and will most probably remain a focus of debate.

Camden's chronicle of the English victory concludes with a discussion of James VI's "embrace of the Queen's friendship" and the Scottish king's "sincere profession of the true religion."[10] The significance of a Protestant accession, first asserted by Camden, appeared often in subsequent histories. In fact, the *Annales* became the most frequently cited historical source until the great expansion of available primary research materials in the nineteenth century enabled more detailed studies.

During the eighteenth century the Tory view of English history which emphasized the rights of sovereign over parliamentary authority dominated treatments of the Armada campaign. The work of David Hume illustrates this trend. Although best known as a philosopher, Hume, a Scot, was the most popular and influential British historian of the eighteenth century. His multivolume *History of England from the Invasion of Julius Caesar to the Revolution in 1688* (1754) teems with Tory philosophy.[11]

Hume maintained that the privileges of Parliament

5. Ibid., pp. 416-18. Ubaldino's second narrative (British Library, Royal Mss. 14 A. XI.) was contained in the same collection as his translation of the "Relation" (British Library, Royal Mss. 14 A. X.).

6. Petruccio Ubaldino, *A Discourse Concernye the Spanish Fleete Invadinye Englande in the Year 1588 . . . ,* trans. for A. Ryther (London, 1590). Corbett, p. 419.

7. Ubaldino's "Comentario" was translated in full for the first time in George P. Naish, ed., "Documents Illustrating the History of the Armada," in Christopher Lloyd, ed., *The Naval Miscellany,* vol. 4 (London 1952), pp. 1-85.

8. William Camden, *Annales* (London, 1625). Short Title Catalog #4497.

9. Ibid.

10. Ibid.

11. David Hume, *The History of England from the Invasion of Julius Caesar to the Revolution in 1688,* 8 vols. (London, 1791), vol. 8, pp. 333-46 passim.

were not "exactly ascertained" nor the royal power "fully limited" during Elizabeth's reign. Although his biases best befit his discussion of the Stuarts, the events of the Armada also provided a ripe forum. Hume praised Elizabeth for having "foreseen the invasion" and for engendering the "confidence which her subjects reposed in her prudent judgment." Unlike the Whig historians of the following century who criticized the Queen for her indecision and weakness in the face of the Spanish, Hume contended that Elizabeth was the major force behind the victory. He also did not hesitate to criticize members of Parliament who objected to the subsidies granted her after the defeat of the Armada.[12]

A landmark in modern historiography, Hume's *History* changed the discipline. He became the first modern historian to advance interpretations of historical events and perceive the importance of causation. Although Hume relied primarily on Camden for factual information, as he was notorious for his refusal to undertake basic research, the *History* nevertheless became a classic for its sweeping narrative and underlying perceptions of politics and human nature. Moreover, Hume's work became a sounding board for later interpretations and an outright target for Whig historians.[13]

Not until the nineteenth century did the events of the Armada become associated with a coherent national history. Previously, several factors worked against the evolution of Armada scholarship. Large stores of primary sources preserved by the government lay uncataloged and virtually inaccessible, and historians made little effort to master the available sources. Considered a branch of literature, professional history did not develop in England until the late nineteenth century. Previously, history was written by dilettantes, gentlemen of leisure, statesmen, politicians, or literary scholars, and remained unencumbered by extensive documentation and verifiable research.[14]

Both Oxford and Cambridge Universities focused historical study on the ancient classics, and offered little instruction in modern history. Endowed chairs in history at these institutions were considered sinecures, and conservative forces in academia often severely criticized serious historical research. In the face of these obstacles, substantive research on the Armada campaign did not appear until a group of British scholars developed a new framework for historical study known as the Whig interpretation.[15]

Led by historians such as James A. Froude, Thomas Carlyle, T. B. Macaulay, and J. R. Green, much of British historical scholarship in the nineteenth century reflected the Whig interpretation. By 1830, the basic elements of this philosophy; historical romanticism and nationalist zeal, found expression in the writings of these men. The Whig interpretation embraced the traditions of Parliament, progress, and Protestantism in the British past, and viewed history with a perpetual reference to the present. Whig history often abstracted events from their historical context and judged them to advance a specific view of the present.[16]

Furthermore, Whig historians, the most influential occupying newly formed chairs at Oxford and Cambridge in the last half of the century, viewed British history as a perpetual struggle. Protestants and Whigs were perennial allies of liberty, while Catholics and Tories represented the forces of tyranny and reaction. The Whig view became a Victorian era standard, and left an indelible mark on Armada historiography. After all, what better event than the Armada to trumpet the heroic, patriotic Protestants in defense of their homeland against the vile regime of Phillip II. The Whig historians exploited the story of the Armada on many pages of colorful, descriptive, if often biased historical accounts.[17]

The availability of new sources and the organization of existing ones prompted the expansion of Armada scholarship during the nineteenth century. After 1830 the organization of the public records of England and their subsequent "discovery" provided a wealth of new material for enterprising historians. The Whigs used original sources freely, especially domestic state papers. They also benefited from the completion of the

12. Ibid.

13. Thomas P. Peardon, *The Transition in English Historical Writing, 1760-1830* (New York, 1933), pp. 69-72. James W. Thompson, *A History of Historical Writing* (New York, 1942), pp. 69-72.

14. Thompson, *A History of Historical Writing*, pp. 280-81.

15. Peardon, p. 9. H. Butterfield, *The Whig Interpretation of History* (London, 1931), pp. 11, 30-31. Rosemary Jann, "From Amateur to Professional: The Case of the Oxbridge Historians," *Journal of British Studies* 22 (Spring 1983), 127-47.

16. Butterfield, pp. 30-31. Rosemary Jann, *The Art and Science of Victorian History* (Columbus, OH, 1985) offers an insightful look at several important British historians of the nineteenth century including Froude, Carlyle, Macaulay, and Green.

17. Thompson, pp. 280-333 passim.

Calendar of State Papers begun under the direction of the Master of the Rolls in 1862.[18]

Another important source for new scholarship on the Armada was the publication in two volumes of official Spanish documents relating to the battle by Spanish naval Captain Cesaro Duro in 1884 and 1885. This collection, entitled *La Armada Invencible* provided much new information in a readily accessible form. In the Whig tradition, though, the first work to rely on Duro's collection, Froude's *Spanish Story of the Armada,* used it to criticize the Spanish rather than relate their side of the encounter.[19]

Of all the Whig historians, James A. Froude provides the best illustration of nineteenth century English historical attitudes toward the Armada campaign. His forceful views related in opinionated prose formed the cornerstone of the Whig interpretation. His major work, *History of England from the Fall of Wolsey to the Defeat of the Spanish Armada,* viewed the battle as the most dramatic event in British history. Froude and other Whig historians focused on several themes associated with the events of 1588. Foremost, they criticized Elizabeth and her approach to the Spanish threat. Opinion ranged from outright scorn to gentle criticism, with the thundering voice of Froude leading the chorus of blame.[20]

Whig historians often blamed Elizabeth's "feminine weakness" and her miserly reluctance to spend money as the principal causes of her careful approach to the war. The origins of this attack can be traced to the correspondence of prominent Puritans of her day. Elizabeth's vacillation, her reluctance to support Protestant leaders on the Continent, and her belief that peace could be preserved became prime targets. Through the years, the Puritan view had influenced scholars, and the works of Froude represented a culmination of this tradition.[21]

In his *History of England,* Froude made no attempt to conceal his unbridled admiration of Henry VIII nor his scorn for Henry's daughter Elizabeth. According to Froude, the Queen was responsible for the "starved and ragged English seamen" who were "so ill furnished by their sovereign that they were obliged to take from their enemies the means for fighting them." The defeat of the Armada, he claimed, was not only a military victory, but a victory over the "weakness of the Queen"[22]

Froude also refused to give Elizabeth credit for the strategic planning behind the Armada campaign. Instead, he praised Burghley and Walsingham as the "soul of the policy which had placed Elizabeth in triumph at last as the head of Protestant Europe." Only in his discussion of the events after 1588, when Elizabeth began to spend more on the war with Spain and for aid to foreign Protestants, did Froude relax his strident criticism.[23]

The Whig historians' Protestant fervor, nationalistic zeal, and enthusiasm for progress found full expression in Froude. To him, the victory over the Spanish was the sermon that transformed Catholics into Anglicans, and made "Catholic England . . . into the England of progressive intelligence." One of the most obvious manifestations of this "progressive intelligence," Froude argued, was the flowering of Elizabethan literature in the years following the Armada. The atmosphere in which the talents of Shakespeare, Spenser, and Marlowe developed directly from the mood of optimism pervading the country after the defeat of the Armada. These were years of "splendour and triumph," years rich in events of "profound national importance."[24]

In addition to providing a favorable climate for the development of great literature, Froude asserted that the English victory assured supremacy on the seas and "broke the back of Spain" both commercially and religiously. English commerce now penetrated to every corner of the Old World, and colonial expansion to the New World foreshadowed certain domination of the Atlantic trade. Froude attributed these developments, and nearly all of England's progress in the Whig sense, to the optimistic national mood which he described.[25]

The most important result of the victory, however, was the religious transformation of England and Europe. England would never again "pass through the farce of a reconciliation with Rome." Instead, the

18. Ibid., p. 311.

19. C. F. Duro, *La Armada Invencible,* 2 vols. (Madrid, 1885). James A. Froude, *The Spanish Story of the Armada and Other Essays* (New York, 1892).

20. James A. Froude, *History of England from the Fall of Wolsey to the Defeat of the Spanish Armada,* 12 vols. (London, 1870).

21 Garrett Mattingly, *The 'Invincible' Armada and Elizabethan England* (New York, 1963), p. 2.

22. Froude, *History,* vol. 12, pp. 537-38.

23. Froude, *The Reign of Elizabeth,* vol. 5 (London, 1912), p. 431.

24. Froude, *History,* vol. 12, pp. 538, 555.

25. Ibid., p. 530.

struggle remained within the Anglican church where the conflicts of the seventeenth century led to the second Reformation. Camden's argument concerning the safe Protestant accession of James VI as a result of the victory also became part of Froude's interpretation.[26]

Froude also argued that the English victory determined the fate of the Reformation in Germany, for if Phillip had been victorious, the Catholic League would have triumphed, France would have backed the Spanish, and the Thirty Years War might have never begun or at least been brought to a swift conclusion. Furthermore, he asserted that the defeat of the Armada signaled a permanent downfall of Spanish influence throughout Europe.[27]

Froude's conclusions on the significance of the Armada campaign remained influential until the revisionism of the twentieth century corrected much of his exaggeration and inaccuracy. Yet his emphasis of the Whig ideals made his works extremely popular and influential among the public as well as the scholarly community.

In the second half of the nineteenth century, however, the historical profession underwent a transformation that changed Armada scholarship. Typically, nineteenth century historical writing blended poetry and philosophy to weave an epic story. The evolution of occupational professionalism in the historical community created new priorities. No longer was it the historian's responsibility to attract and educate the general public, or engage in the "might have" approach to tempt readers with historical possibilities. The discipline itself became the audience, and verifiable, objective scholarship replaced unscientific methods of historical inquiry. Professional training became the only accepted method for pursuing the historical truth, and the subsequent rise of formal graduate programs in history throughout Europe and the United States brought a wealth of new writing based on professional research techniques.[28]

The evolution of the research ideal became the force behind the transformation of the historical profession. Under the influence of German historians Carsten Niebuhr and Leopold vonRanke, who insisted that history be based strictly on contemporary sources, "scientific history" spread to England primarily through the efforts of Oxford professors William Stubbs and E. A. Freeman. The influence of the new methodology resulted in fewer narrative histories which covered many centuries and gave rise to more specialized works covering narrow subjects.[29] Historians studying the Armada began to delineate new areas of research. Naval and tactical analysis of the strategy surrounding the battle soon became the most popular areas of inquiry.

The completion of state papers relating to the defeat of the Armada by naval historian Sir John Laughton in 1894 provided researchers with a valuable new source.[30] It remains the most complete collection of English documents concerning the Armada campaign, and includes selected Spanish and French sources as well. Laughton's volume proved to be a great success, as he is cited in all of the major works on the subject in the twentieth century.

Until the late nineteenth century, naval history most often recounted battles or eulogized important admirals. Illustrative of the movement toward more specialized areas of historical inquiry, Laughton delivered a lecture at a meeting of the Royal United Service Institution in 1875 entitled "The Scientific Study of Naval History." He called for a new appraisal of naval history that would reveal not only the reasons for success or failure of campaigns, but also the "influences which . . . at different periods, rendered different countries powerful by sea." Throughout Laughton's career he encouraged naval historians to abandon their narrow focus on "the fighting" and attempt to examine naval history within the context of national development.[31]

Laughton's contributions to naval history, particularly the 1875 lecture, greatly influenced the work of American naval officer and historian Alfred T. Mahan. His *The Influence of Sea Power upon History* (1890) fulfilled the agenda proffered by Laughton. Apart from

26. Ibid., p. 531.
27. Ibid.
28. Jann, "From Amateur to Professional," pp. 126-27.

29. For examples of the transformation of historical scholarship in England see William Stubbs, *Seventeen Lectures on the Study of Medieval and Modern History*, 3rd edition (Oxford, 1900) and E. A. Freeman, *The Methods of Historical Study* (London, 1886). For a general discussion of this change see Sheldon Rothblatt, *Tradition and Change in English Liberal Education* (London, 1976).

30. *State Papers Relating to the Defeat of the Spanish Armada*, 2 vols. (London, 1894).

31. Laughton, "The Scientific Study of Naval History," *Journal of the Royal United Service Institution* 18 (1875), 508-27. Daniel A. Baugh, "The Navy to 1714," in Robin Higham, ed., *A Guide to the Sources of British Military History* (Berkeley, 1971), pp. 84-97.

its political significance, especially to policy makers in the United States, the book led naval history into the mainstream of political history.[32] The concept of "sea power," the role of naval power in international politics, captured the imagination of naval historians such as Sir William Clowes, Sir Herbert Richmond, Michael Oppenheim, and Sir Julian Corbett. Their studies reflected not only an attempt to relate naval tactics in an intelligible manner, but to place topics within the framework of political events.[33]

Sir Julian Corbett's *Drake and the Tudor Navy* (1898) was the first "scientific" examination of the Armada battle. Corbett detailed the naval tactics surrounding the preparations for the Armada, their relationship to political events in England, and the battle itself. Examining the relative strengths and weaknesses of both fleets, including the armaments, the capabilities of various ships, and the tactical skill of the commanders, Corbett shattered many myths surrounding the battle.

The traditional account of the fighting, perpetuated by contemporary chroniclers and heightened through the years by myth and the Whig interpretation, claimed that the English navy was inferior in both firepower and number to the great Spanish fleet. Only with the aid of a few fire-ships and small armed merchant vessels which inflicted well-placed volleys for their homeland did the valiant English gain victory.

Corbett offered a more balanced interpretation based on extensive research. He maintained that the English victory resulted from the actions of "a regular trained navy of specially built warships." Rejecting Camden and others who maintained that English merchant vessels had forced the formal Spanish navy from the seas, Corbett asserted that "it was England who had the formal navy, not Spain, and it was the navy not the privateers that decided the campaign."[34]

This important revision inspired many other tactical studies which explored the capabilities of both fleets, especially respective armaments. Corbett also dispelled the view that the English navy was far inferior to the Armada. After careful analysis, he concluded that the English fleet was on a "fair equality with the Armada in the galleon class," and possessed "an overwhelming preponderance of gunpowder."[35]

Corbett also argued that Sir Francis Drake was the guiding spirit of the Armada campaign and that full credit for the tactical victory belonged to the colorful admiral. This thesis reflected another continuing controversy in Armada historiography. Contemporary chroniclers and professional historians alike have wrestled with the question of whether Drake or Howard deserved credit for the victory. Since meaningful research on the tactics of the battle did not appear until Corbett's study, most accounts reflected either the influence of the two men, as with Ubaldino, or the personal affinity of the writer for the myths surrounding both naval officers.

J. A. Williamson's *The Age of Drake* (1938) also traced the tactical aspects of the Armada battle. Williamson's major revision of Corbett concerned the roles of Drake and Howard. Despite Corbett's claim that Howard's command was "a courtly fiction," Williamson argued that Howard was the real commander of the English fleet. Williamson also reasoned that since contemporaries heard and wrote more about Drake than Howard, historians had been too quick to accept Drake's preeminence.[36]

Perhaps the most significant research on the tactical aspects of the Armada campaign appeared in a series of articles by Michael Lewis in the British maritime journal *The Mariner's Mirror* during 1942 and 1943. Entitled "Armada Guns," the articles focused on the size, number, and capability of the armaments of both fleets. Lewis argued that while the English possessed more long-range firepower, the Spanish held a great advantage in medium- and short-range guns. Thus, the two fleets were equipped for their chosen tactical roles; the English to keep the exchange at long range, and the Spanish to engage in close action. Lewis'

32. Alfred T. Mahan, *The Influence of Sea Power upon History* (Boston, 1890). Baugh, pp. 84-85.

33. See, for example, Sir William L. Clowes, *The Royal Navy, A History from the Earliest Times to the Present*, 7 vols. (London, 1897); Sir Herbert Richmond, *The Navy as an Instrument of Policy 1585-1727* (Posthumously published, Cambridge, 1953) and *Statesmen and Sea Power* (Oxford, 1946); Sir Julian Corbett, *Drake and the Tudor Navy, England in the Mediterranean* (London, 1904), and *The Successors of Drake* (London, 1900); Michael Oppenheim, *A History of the Administration of the Royal Navy: from MDIX to MDCLX* (London, 1896) and ed., *The Naval Tracts of Sir William Monson*, 5 vols. (London, 1902).

34. Corbett, *Drake and the Tudor Navy*, p. 284.

35. Ibid., pp. 179, 185.

36. J. A. Williamson, *The Age of Drake* (London, 1938). See also Williamson's *Sir John Hawkins* (Oxford, 1927) and the revision *Hawkins of Plymouth* (London, 1949), and *Maritime Enterprise 1485-1558* (Oxford, 1913). R. W. Kenny provides a balanced view of the role of the two commanders in *Elizabeth's Admiral: The Political Career of Charles Howard, Earl of Nottingham, 1536-1624* (Baltimore, 1970).

conclusions differed sharply from Corbett's, who had portrayed the Armada as inadequately armed.[37]

Lewis' thesis faced its major challenges from the scholarship of I. A. A. Thompson and Colin Martin during the 1970s.[38] Thompson found the Spanish deficient in all classes of armaments. He wrote: "the Spanish Armada was at such a decisive disadvantage in firepower, in both weight of shot and range, that it was probably incapable of winning the sea battle on whatever terms it was fought." Martin, using data collected from the salvage of wrecked Spanish vessels, argued that the Spanish had far fewer guns of all varieties than Lewis had claimed.[39]

Perhaps the most influential and provocative work on the events of the Armada in the twentieth century is Garrett Mattingly's *The Armada*. This classic volume, published in 1959, remains the most widely accepted account of the political and military aspects of the confrontation. Mattingly approached the subject from a broader perspective than any scholar had previously attempted. He placed the event into a European context, using Continental sources freely, and developed an interpretation valuable for its originality as well as its scope.[40]

Mattingly viewed the confrontation not as a Spanish response to an English challenge for command of the ocean and for seaways to empire, but as a decisive event in the European conflict between the Reformation and the Counter Reformation. He argued that the Armada was Phillip II's answer to Elizabeth's interference in the Netherlands and her obstruction of his attempt to gain European hegemony. According to Mattingly, the future of Protestantism in Europe depended on the battle.

The victory was decisive, Mattingly argued, and guaranteed that "religious unity was not to be determined by force on the basis of medieval Christendom." However, he rejected many of the older beliefs about the consequences of the battle. Mattingly contended that it did not mark the end of the Spanish empire and the rise of the English. Spain remained powerful. "The defeat of the Armada," he wrote, "was not so much the end as the beginning of the Spanish navy." More treasure from the New World reached Spain from 1588 to 1603 than in any other fifteen years in Spanish history. Mattingly also observed that the battle did not mark the beginning of the English colonial empire or England's sovereignty over the seas.[41]

Further, he argued that the victory over the Spanish did not lead to a national mood of "buoyant optimism," which affirmed God's favor to the Protestants and confirmed the destiny of an imperial people. Mattingly dismissed this Whig canard, and attacked their view that the defeat of the Armada led to a flowering of Elizabethan literature. He maintained that "there is no link in England between the Armada campaign and any literary work." Moreover, Mattingly claimed that one could find no greater prevalence of "buoyant optimism" in the decade and a half after 1588 than in the previous fifteen years.[42]

Mattingly also restored the images of two principal actors in the Armada story, Elizabeth and the Duke of Medina Sidonia. Long maligned for her reluctance to unleash her "sea dogs" against the "forces of the anti-Christ" before she did, Elizabeth appears in *The Armada* as a skilled politician and able tactician, largely responsible for the ultimate success of the campaign. Mattingly argued that Elizabeth knew more about the economics of naval warfare than some of her captains, including Drake and Howard. Medina Sidonia is similarly resurrected from the grave of Whig misinterpretation. Mattingly presents the Duke as courageous, administratively talented, and "sound in his personal conduct." He argued that Medina Sidonia was not a "craven coward," as Froude had presented him, but a man who did well in the face of a desperate situation.[43]

Mattingly's attempt to place the events of the Armada campaign into a European perspective resulted

37. Michael Lewis, "Armada Guns: A Comparative Study of English and Spanish Armaments," *The Mariner's Mirror* 28 (1942), 41-73, 104-47, 231-45, 259-90; and *The Mariner's Mirror* 29 (1943), 100-21, 163-78, 203-31. These articles were reprinted as *Armada Guns* (London, 1961).

38. I. A. A. Thompson, "Spanish Armada Guns," *The Mariner's Mirror* 61 (1975), 355-71. Colin Martin, *Full Fathom Five: The Wrecks of the Spanish Armada* (New York, 1975).

39. Thompson, "Spanish Armada Guns," p. 370. Martin, pp. 59, 157, 179. Other significant scholarship on the tactical aspects of the Armada include D. W. Waters, "The Elizabethan Navy and the Armada Campaign," *The Mariner's Mirror* 50 (1964), 177-87; J. R. Lander, "An Assessment of the Numbers, Sizes, and Types of English and Spanish Ships Mobilized for the Armada Campaign," *The Mariner's Mirror* 63 (1977), 359-64; and J. deCoursey Ireland, "Ragusa and the Spanish Armada of 1588," *The Mariner's Mirror* 64 (1978), 251-62.

40. Garrett Mattingly, *The Armada* (Boston, 1959). Reprinted as *The Defeat of the Spanish Armada* (Boston, 1984).

41. Mattingly, *The Armada*, pp. 398-401.

42. Ibid., p. 398.

43. Ibid., p. 375.

in an important original conclusion. After the Armada, he wrote: "the pattern of territorial, ultimately (national) states which was to characterize modern Europe was beginning to emerge . . . each major state was not only to be free, but increasingly to feel free, to develop its own individual potentialities without conforming to any externally imposed system of beliefs."[44] This conclusion summarized what previous historians had failed to recognize, that national self-determination was perhaps the most important result of the English victory.

Mattingly was also the first to consider the legacy of the Armada story in historical perspective. He asserted that the legend of the Spanish Armada became as important, perhaps more so, than the actual event. "Magnified and distorted by a golden mist," the story "became an eternal myth of the victory of the weak over the strong, of the triumph of David over Goliath." In Mattingly's last work, *The 'Invincible' Armada and Elizabethan England,* he blamed "compulsive national fantasies" for the distortion of events through the centuries.[45]

Other significant works on the Armada in recent years include Michael Lewis, *The Spanish Armada* (1960) and David Howarth, *The Voyage of the Armada* (1981).[46] Lewis' survey of the Armada campaign focused on the major actors, especially the major naval officers involved in the battle. He also devoted a good portion of the book to tactical analysis, using data collected from his articles in *The Mariner's Mirror.* Lewis concluded that an important result of the battle, not mentioned previously, was "an abiding, almost intuitive trust of the [English] people in their Navy which, though not always justified, has never faded, and seldom faltered."[47] His insights into the naval personalities of the campaign are perhaps the most important contribution of the book.

Some of the more intriguing recent research on the events of the Armada appeared in Howarth's book. Using material from Duro's *La Armada Invencible,* plus additional Spanish documents, Howarth attempted to relate the story from the Spanish perspective. "After all," he wrote, "it was [the Spanish] who needed the most courage in 1588."[48] Interested only in the events from May to September 1588, Howarth argued that the Spanish had an unrealistic approach to the battle, defective strategy and tactics, and a tenacity which led them into further trouble. The book, though limited in scope and disappointing in its conclusions about the Spanish side of the story, gave valuable insight into the workings, both administrative and tactical, of Spain's preparations for and conduct of the Armada campaign.

Howarth's interest in administrative history evidenced the growing importance of that topic in recent years. Studies of the administrative workings behind the preparations, or lack thereof, of Elizabeth's government to meet the Spanish threat have added a new dimension to Armada historiography. Lawrence Stone first examined in detail the role of the English bureaucracy in the Armada campaign. Stone found their preparations "criminally inadequate," lacking foresight and efficiency in the conduct of military affairs.[49]

Focusing on the role of the Privy Council, the department of the Exchequer, and the Admiralty, Ronald Pollitt has argued instead that the bureaucratic organization of England's defense establishment was a major factor behind the victory over the Armada.[50] He asserted that these small but efficient branches of Elizabeth's government played a significant role in planning and executing the tactics for preventing a Spanish invasion. Pollitt wrote: "the Crown and its bureaucracy mobilized, armed, equipped, and kept at sea a fleet whose whole purpose was to keep the Spanish out of England. It did precisely that. . . ." He viewed the defeat of the Armada as the first military victory "engineered by an emerging bureaucratic state" and argued that "the importance of the victory lies as much in that development as it does in the other effects attributed to it."[51]

44. Ibid., p. 401.

45. Ibid., p. 402. Mattingly, *The 'Invincible' Armada,* p. 1. Another contemporary historian, William S. Maltby, has also addressed the Armada legend. He contended that more than any other event, the Armada placed a strong anti-Hispanism into the English consciousness and led to a myth of Spanish incapacity.

46. Michael Lewis, *The Spanish Armada* (London, 1960). David Howarth, *The Voyage of the Armada: The Spanish Story* (New York, 1981). For a wider perspective on the years preceeding and following the Armada, see R. B. Wernham's volumes *Before the Armada* (New York, 1966) and *After the Armada* (Oxford, 1984). Also, see D. B. Quinn and A. N. Ryan, *England's Sea Empire, 1550-1624* (London, 1983).

47. Lewis, p. 212.

48. Howarth, preface.

49. Lawrence Stone, "The Armada Campaign of 1588," *History* 29 (1944), 120-43.

50. Ronald Pollitt, "Bureaucracy and the Armada: The Administrators Battle," *The Mariner's Mirror* 60 (1974), 119-32.

51. Ibid., p. 132. For an examination of English naval planning,

With the interest in administrative history complementing previous studies of the Armada campaign, historians have assembled a reasonably complete picture of events. However, Armada scholarship remains tied to political, diplomatic and military history. The anniversary may encourage social and economic historians to examine the story from a new perspective.

Despite the effects current trends may have on Armada historiography, some old business must be concluded. The time is ripe for a synthetic account which incorporates administrative history and reexamines the domestic and foreign consequences of victory. There is also a need for additional work from the Spanish perspective, especially concerning the consequences of defeat.[52] Moreover, local history should be employed to provide new insights into less well known facets of the story such as the preparations for the war on the local level.

Another promising area of inquiry is the attitudes and perceptions of the English people as events in the 1570s and 1580s foreshadowed the war with Spain. In general additional work is needed at the opposite ends of the historical spectrum as it relates to the Armada. Although a broad survey would be useful, many details remain unexplored that may reveal a new theme in English history during the period.

In the twentieth century historians have begun to lift the "golden mist" which has shrouded the Armada story. Although long blighted in previous years by a search for a "useable past," Armada historiography has at last broken free. Yet it would be unfortunate if the grandeur of the story were lost amidst "scientific" inquiries, for the defeat of the Armada remains one of the greatest tales ever told.

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preparation, and administration in the years before the Armada, especially the efforts of William Cecil and Lord Admiral Clinton, see Ronald Pollitt, "Contingency Planning and the Defeat of the Spanish Armada," *The American Neptune* 45 (Winter 1984), 25-32. He concluded that "a fair share" of the responsibility for the victory must rest with governmental officials who anticipated the crisis, surveyed resources, and devised a contingency plan for battle.

For the Spanish perspective on administration and bureaucratic organization for the Armada see I. A. A. Thompson, "The Appointment of the Duke of Medina Sidonia to the Command of the Spanish Armada," *Historical Journal* 12 (1969), 5-28, and "The Armada and Administrative Reform: The Spanish Council of War in the Reign of Phillip II," *English Historical Review* 82 (October 1967), 698-725. Also, Peter Pierson, "A Commander for the Armada," *The Mariner's Mirror* 55 (1969), 383-400.

52. An important step in this direction was taken by Felipe Fernández-Armesto in *The Spanish Armada: The Experience of War in 1588* (Oxford, 1988).

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The *Emanuel* of Bridgwater and Discovery of Martin Frobisher's "Black Ore" in Ireland

DONALD D. HOGARTH

INTRODUCTION

THE adventure of the *Emanuel* is a radical departure from the violent, late-16th century history of Ireland. It is concerned with the age-old thirst for gold and the blind faith of navigators in Tudor times, with Richard Newton, the Captain and owner, completely convinced of the great worth of the ore, in the face of contrary evidence. This may reflect the obstinacy of Martin Frobisher, the central figure in the Baffin Island expedition of 1578.

This paper reviews the known pertinent data in manuscripts and publications, and summarizes the mineralogy, chemistry and age of five cobbles from the beach at Smerwick Harbour, southwest Ireland, believed to have been derived from the *Emanuel*. These are described elsewhere in a more technical form.[1]

Little attention has been paid this vignette of history, partly because it was overshadowed by the massacre at Smerwick (November 1580), partly because George Best, a chronicler of the voyages, falsely reported that "all the fleete [of Frobisher's third voyage had] arrived safely in Englande aboute the firste of October,"[2] and partly because no "gold ore" has been reported from Smerwick in recent years. The ore, itself, was suspected to be "fools gold" (pyrite) a suspicion that proved misleading. To date, the best account of the incident is given in a brief communication,[3] which connects, probably correctly, the name Fort del Oro with Frobisher's "gold mines" in arctic Canada, but fails to relate the various items of information that were at hand.

Abbreviations of manuscript sources:
BL. British Library (London)
HL. Huntington Library (San Marino)
PRO. Public Record Office (London)
SRO. Somerset Record Office (Taunton)

Permission to quote short passages was granted by the British Library (Manuscript Division), the Public Record Office and the Somerset Record Office. All dates will be given in new style.

BACKGROUND INFORMATION

The Frobisher voyages have been covered by Stefansson and McCaskill,[4] who printed all information known at the time of their publication (1938). Additional data are available from the two sets of Exchequer papers.[5] Unless otherwise stated, this section is based on information from these three sources.

The first Frobisher expedition (1576) was funded, by private subscription, to locate the Northwest Passage. For this task, the sponsors purchased two ships and a pinnace. Early in the expedition, the pinnace sank and one ship deserted, leaving Frobisher with the 20-ton *Gabriel*. From 28 July to 26 August she cruised the coasts of Frobisher Bay (then called Frobisher Strait), Baffin Island. Later, back in England, a specimen of black rock, a souvenir of the landfall in the New World, was analyzed several times, with some analyses returning extremely high values in gold and silver. On the basis of these tantalizing returns, the Cathay Company was organized to prospect and mine

1. D. D. Hogarth and J. C. Roddick, "Discovery of Martin Frobisher's Baffin Island 'ore' in Ireland," *Canadian Journal of Earth Sciences* (in press).

2. Vilhjalmur Stefansson and Eloise McCaskill (eds), *The Three Voyages of Martin Frobisher* (London, 1938), vol. 1, p. 122.

3. Anonymous, "The antiquities of Kerry. No. 11. The true history of Fort-del-Oro, Smerwicke," *Kerry Magazine* (1 Aug. 1854), vol. 8, no. 1, pp. 113-116.

4. Vilhjalmur Stefansson and Eloise McCaskill (eds; 1938), *op. cit.* [2 vols.].

5. a) "Frobisher voyages," BL, Add. 39852. Copy made for Craven Ord about 1821-1824, original in PRO, Misc. Books (Exchr K.R.), vols. 35, 36, 27 Nov. 1578-6 May 1581.

precious metals. In the two succeeding expeditions the Northwest Passage was all but forgotten.

The second expedition was sent out in 1577. After eliminating the original discovery as a potential mine, the three "goldfiners" (assayers and prospectors) examined likely sites nearby. In August, Frobisher chose an austere rock (Countess of Warwick Island) to be the locus of mining operations. Officers, tradesmen, mariners and miners alike, were put to work, laboriously excavating trenches to mine solid ore beneath the frost-heaved rubble. On 24 August they departed for England, with their three small vessels loaded down with 160 tons of coal-black "ore."

For the next expedition, Frobisher was awarded a patent to press into service miners, mariners and other persons necessary for the voyage.[6] One hundred and forty-five miners were acquired in the West Country but, of these, many were unskilled in mining and, therefore, held auxiliary posts in the expedition. Later, Frobisher was accused of greatly exceeding the essential labour force and to have hired 100 persons without permission of the Company.

The third Frobisher voyage (1578) was the largest arctic expedition of all time. It involved 15 ships and over 400 officers and men. Eleven ships were officially commissioned for the voyage. The remaining four, one of which was the *Emanuel* or *Buss* of Bridgwater, were under private contract with Frobisher. It is the third expedition and the saga of the *Emanuel* that are special concerns in this paper.

The exact appearance of the *Emanuel* is, of course, not known. A 16th century *buss* was a three-masted fishing vessel, a square rigger of variable burden (more than 110 tonnes in the case of the *Emanuel*). She was broad in the beam, with raised decks fore (for equipment) and aft (for crew), and resembled a galleon. In June 1578 she sailed to Baffin Island, Canada, with a small cargo, which included "20 chaldron Seacoles" (or 53 tonnes if Newcastle caldrons are assumed), acquired by Frobisher personally, but which were later disallowed as a charge against the Cathay Company by the Commissioners appointed to examine the Company's business. Frobisher countered that this coal was essential to the well being of the expedition and that the "coals" that "Lock had Ladyn was such Drose that they would do no sarvis, neithr would thay berne." The Commissioners' ruling stood and Frobisher was responsible for the hire of the ship, the wages of three men, a small cargo of goods returned from Baffin Island, as well as the coal.[7]

The ship's complement included seven miners, an unspecified number of mariners (only one of whom appears on the payroll), a passenger (Thomas Wiars), the master (James Leeche), and the captain-owner (Richard Newton). One of the miners was a William Newton, but it is not known if he was related to the captain, nor are we given the domicile of any officer or man, except the captain.

Captain Richard Newton came from Bridgwater, Somerset, where, prior to the voyage, he had been active, trading with English and foreign customers in salt, iron, lumber, wine, oil, olives, pitch and Brazil wood (from the tropics and used in making dye). His ships were apparently armed, for he was twice billed for storage of guns.[8] He seems to have been regarded as superior to his competitors, because in the water bailiff accounts of Bridgwater from 1572 to 1582 he is the only trader referred to as "Mister."

The *Emanuel* left Harwich 31 May, anchored off Plymouth 3 June, sighted Resolution Island in arctic Canada 1 July and, separated from the rest of the fleet, was icebound for most of July. During this time she sustained dangerous leaks and a badly broken prow. It became necessary to press 500 strokes on the pump every two hours to keep her afloat. On 27 July, she finally freed herself from ice and limped into Countess of Warwick Sound for repairs, but no doubt the scars and unhealed wounds from these encounters had an important effect on her later history.

On 31 July, most of the fleet, including the *Emanuel*, assembled off what is now known as Kodlunarn Island (then Countess of Warwick Island; see Fig. 1), the center of operations of the expedition, and for the next month there was feverish activity in the immediate vicinity. During August, the miners were put to work, excavating and stockpiling ore from various sites. In late August and the beginning of September, all available ships were filled with ore, but by summer's end, one ship had sunk and another deserted. A total of 1136 tonnes were transported to England in twelve ships (official tonnage). The *Emanuel*, not included in

6. Calendar of Patent Rolls, Eliz. 1, vol. 7, no. 2886, 21 Mar. 1578.

7. Quotations from BL, Add. 39852, fols 124V, 126V, 210R, 210V.

8. SRO, Water Bailiff Accounts, D/B/bw 1469 (1572) and D/B/bw 1470 (1574).

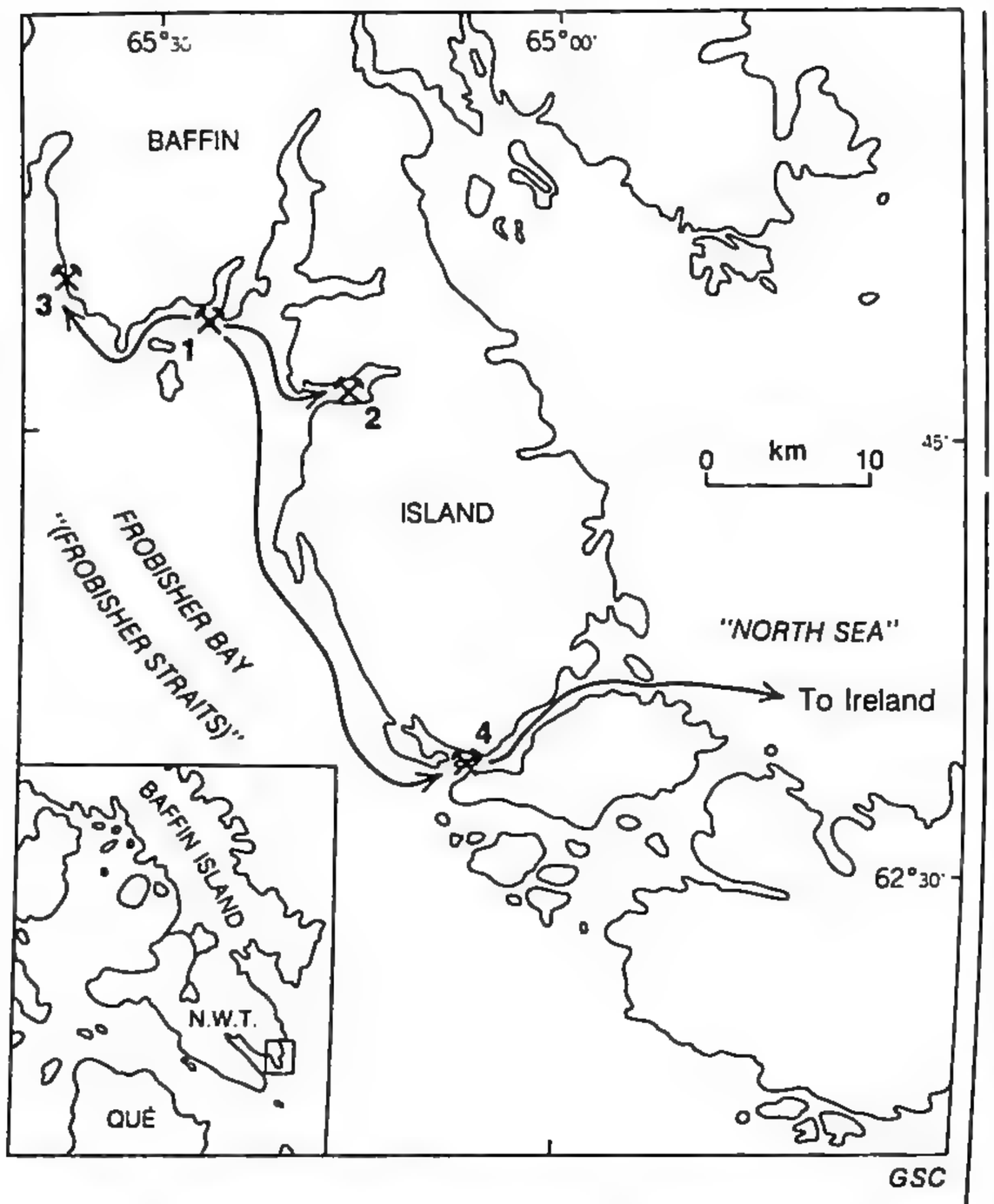

Fig. 1. Anchorages of the *Emanuel* of Bridgwater in the Baffin Island area, 1578. 1. Kodlunarn Island, expedition headquarters (31 July-21 Aug., anchorage only), 2. Denham's Mount, Dyer's Sound (21-24 Aug., 20 t. loaded), 3. Countess of Sussex Mine (*ca* 25-27 Aug. 30 t. loaded), 4. Leicester Island Mine, Beare's Sound (29 Aug.-3 Sept., 60 t. loaded). Illustration published with permission of the Canadian Journal of Earth Sciences.

these statistics, loaded "black ore" from Countess of Sussex Mine (30 tons), Denhams Mount (20 tons), and Leicester Island (60 tons; estimated tonnages).[9]

By 2 September, Frobisher had fulfilled his obligation to load 800 tons of ore onto the Company's ships,[10] but he seemeed particularly anxious to enforce the full loading of the *Emanuel*, whose cargo belonged to Captain Newton and himself. To oversee this work, Frobisher remained on Leicester Island in the midst of a howling gale, "an outragious tempest . . . more terrible than any that preceded," but that evening, he embarked in the tiny *Gabriel*, leaving the *Emanuel* to her destiny.

The next day (3 September), with the storm still raging, the *Emanuel* departed Baffin Island, bound for England, behind the rest of the fleet. Being unable to come about in the narrow channel of Beare Sound (probably present-day Chappel Inlet), she steered northeasterly and returned via the "North Sea" and "the back side of the North lande."[11] The *Emanuel*'s route from 31 July to 3 September is shown on Figure 1.

The return journey was geographically interesting. For 28 hours the *Emanuel* passed along side a large island ("Buss Island") that has defied identification to this day.[12] Possibly the island is a recently submerged part of the orogenically active Reykjanes Ridge or, possibly, as suggested by Mill and Nansen,[13] the confusion resulted mainly from the navigators' implicit faith in the existence of Frieseland, a mythical island west of Iceland, fabricated by Nicolo Zeno in 1558. On 25 September they sited Galway.

The plight of the *Emanuel* off the coast of Ireland is recounted in a newsletter from Gerot Desmond to the Lords of the Privy Council.[14] In a futile attempt to reach England, she encountered violent "contrarie winds and fowle Weather." For the next six or seven weeks, the badly damaged ship was driven, helplessly, up and down the coast. Finally, minus masts, sails, boats, anchors, "or any other convenient furniture" she attained the shelter of Smerwick Harbour and was beached in the shallows off the western shore near the haven of the merchant Piers Rice. Here she awaited unloading, laid "up to the full Sea marke." Then to facilitate repairs and to ensure the safety of her precious cargo, two of the crew and a servant of Rice, using two hired pinnaces, transferred 100 tonnes of ore

9. Official tonnage was totalled from data in BL 39852, fols 116R-120R. Estimated tonnages were taken from Edward Sellman's registry in Vilhjalmur Stefansson and Eloise McCaskill (eds; 1938), *op. cit.*, vol. 2, p. 70.

10. Instructions to Martin Frobisher for the third voyage in Vilhjalmur Stefansson and Eloise McCaskill (eds.; 1938), *op. cit.*, vol. 2, p. 160.

11. Quotation from George Best in Vilhjalmur Stefansson and Eloise McCaskill (eds.; 1938), *op. cit.*, vol. 1, p. 122.

12. See Alice M. Johnson "The mythical land of Buss," *The Beaver* (December 1942), Outfit 273, no. 3, pp. 43-47.

13. Hugh Robert Mill and Fridtjof Nansen, "Polar regions." In *Encyclopaedia Britannica*, 11th ed. (New York, 1911), vol. 21, p. 941.

14. Gerot Desmond to the Lords of the Privy Council. PRO, SP 63, vol. 65, no. 15, 9 Jan. 1579.

to the haven, leaving approximately 8 tonnes of the largest pieces in the hold. The "eyore" [ore] was claimed by Gerot Desmond, Kerry's palatinate incumbent, who would "preserve it" for the Queen, until a firm decision was taken for its disposal. Considering the financial loss in these voyages, it is not surprising that the Company considered the "ore" its own.

It was not long before Richard Newton, owner and captain of the *Emanuel*, having received no compensation for his part in the third voyage, petitioned the Privy Council to grant "for his owne use the eure in consideration of his great charges in his laite viage to the Norwest." The request was granted by Act of Council, 25 March 1579, and Gerot Desmond (Gerald Fitzgerald, 16th Earl of Desmond) was ordered to deliver the ore to Newton forthwith.[15]

In late 1579, the "perty castil" of Piers Rice was reconstructed as a fort.[16] The Irish dubbed the edifice Dún-an-Óir (earthwork of gold), probably in allusion to the "black ore" landed here, which may have been used in constructing the walls. After the landing of the Italian-Spanish force in 1580 it was also known as "Forte del Oro," "Fort del Oro," "Fuerte del oro," "Castell dell'Oro" and "Castello del Oro."

In the meantime, about 140 tons of ore from the second voyage were transported from Bristol to Dartford, near London, some by land in July, but most by sea in October, 1578. By order of Queen Elizabeth, ore was stored temporarily under lock and key in the "olde emptie chappell" attached to the Manor House of Henry VIII at Dartford.[17] To this storage heap was added "black ore" from twelve ships of the third voyage. Today much of this material remains scattered around the premises and some large pieces have found their way into the priory walls, thought to have been extended during reconstruction in 1581-2.[18] It was a piece of the "black ore" from the Manor House that was compared with cobbles from the beach at Smerwick Harbour, to be discussed in the next section.

The Cobbles

A portion of the 100-ton trove of "black ore" from the *Emanuel* would be expected to remain on the beach at Smerwick, long after the bulk of the rock had been removed, and mark the approximate location of the original stockpile. With this in mind, three coves near Dún-an-Óir were examined in May 1987. The head of a cove immediately north of the old fort, known as Coosgorrib (Fig. 2), was fringed with three strand lines at low tide, the highest containing a few cobbles of similar appearance to the "black ore" of Baffin Island, *viz.* black with a faint cast of green and submillimetric to centimetric grain size. Cleavages of one specimen reflected sunlight to the top of a 15-meter cliff.

Five cobbles were collected and carefully studied. All belonged to a rather rare rock type, meta-ultrabasite, composed mainly of hornblende (a common mineral) but with the rare associations *A* hornblende + diopside + ilmenite and *B* hornblende + olivine + ilmenite. These associations have not been

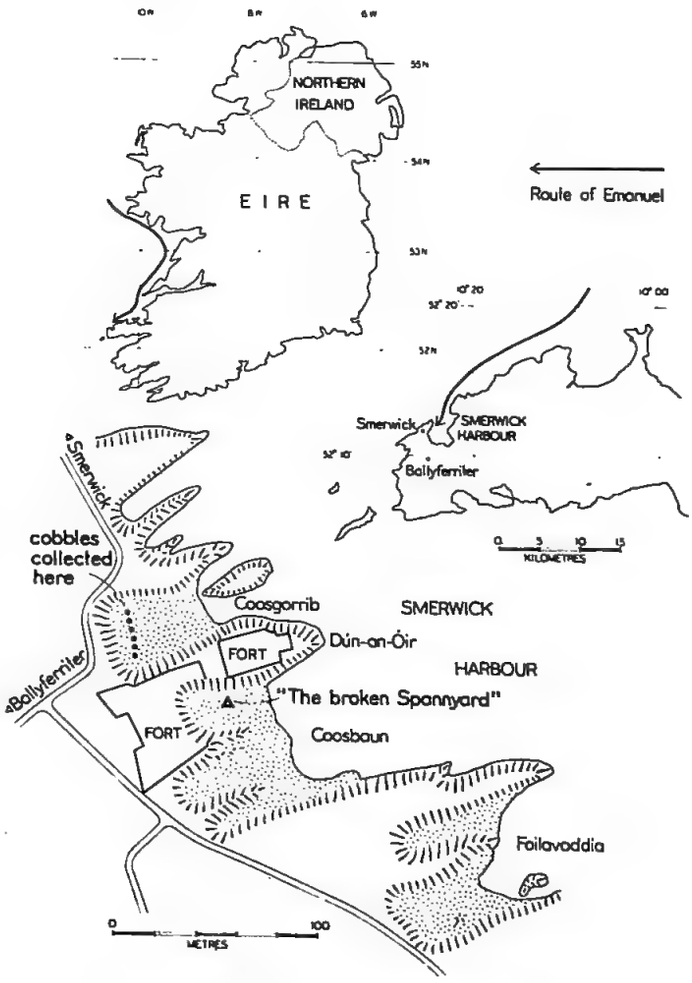

Fig. 2. Dún-an-Óir, Ireland, showing the location of the fort, the cobbles, and the "broken Spannyard."

15. *Acts of the Privy Council,* N.S. vol. 11, p. 60 (26 Feb. 1579); *ibid.*, p. 89 (25 Mar. 1579).

16. Anonymous (1854), *op. cit.*, pp. 115-116.

17. *Acts of the Privy Council,* N.S. vol. 10, p. 271 (3 July 1578).

18. Peter W. Boreham, Dartford Museum, written communication, 11 June 1985.

found in Ireland. The chemical compositions are also distinct: the first association is characterized by high trace contents of the rare element vanadium, and the other by unusually large amounts (but still in trace concentrations) of nickel and chromium. The rocks are similar to Martin Frobisher's "black ores" from Baffin Island.[19] The hornblende + olivine + ilmenite type is almost identical with a specimen from the Dartford Manor House (see Fig. 3). Most significant is the potassium-argon age of 1800-1900 million years, an age which characterizes a period of metamorphism in Baffin Island,[20] but is unknown in Ireland. The evidence for Baffin Island being the source of these cobbles, well rounded after 400 years of "tumbling" and "sand blasting," is compelling. Details are provided by Hogarth and Roddick.[21]

Needless to say, recovery of precious metals from these cobbles is "scraping the bottom." It has long been known that Frobisher's analyses were in error and that the so-called "black ore," in truth, contained very little gold and silver.[22] Tiny flakes of black mica disseminated through the dark rocks may have attracted the attention of Frobisher's men. This mineral oxidizes to golden yellow when specimens are heated in air at about 600°C, and it is known that the mariners examined their rock after heating it in a ship's furnace.[23] The high gold values reported by the Elizabethan assayers have been attributed to mistakes in the analytical procedure.[24] Our cobbles, analyzed by modern and accurate methods, contained up to 6 parts per billion gold (6/1,000,000,000 by weight), and only one of the five cobbles contained more than 2 parts per billion. As a yardstick of comparison, the crust of the earth is estimated to average 3.5 parts per billion gold.[25]

19. D. D. Hogarth and W. A. Gibbins, "Martin Frobisher's 'gold mines' on Kodlunarn Island and adjacent Baffin Island, Frobisher Bay, NWT," *Contributions to the Geology of the Northwest Territories* (1984), vol. 1, pp. 69-77.

20. G. D. Jackson and W. C. Morgan, "Precambrian metamorphism on Baffin and Bylot Islands," *Geological Survey of Canada* (1978), paper 78-10, pp. 249-267.

21. D. D. Hogarth and J. C. Roddick (in press), *op. cit.*

22. The old analyses are summarized and compared with new analyses in Donald D. Hogarth and John Loop, "Precious metals in Martin Frobisher's 'black ores' from Frobisher Bar, Northwest Territories" (1986), *Canadian Mineralogist*, vol. 24, pp. 259-263.

23. Donald D. Hogarth, John Loop and W. A. Gibbins, "Frobisher's gold on Kodlunarn Island—fact or fable (1985), *CIM Bulletin*, vol. 78, pp. 75-79.

24. Donald D. Hogarth and John Loop (1986), *op. cit.*

25. Tung Li and Chi-Lung Yio, "The abundances of chemical

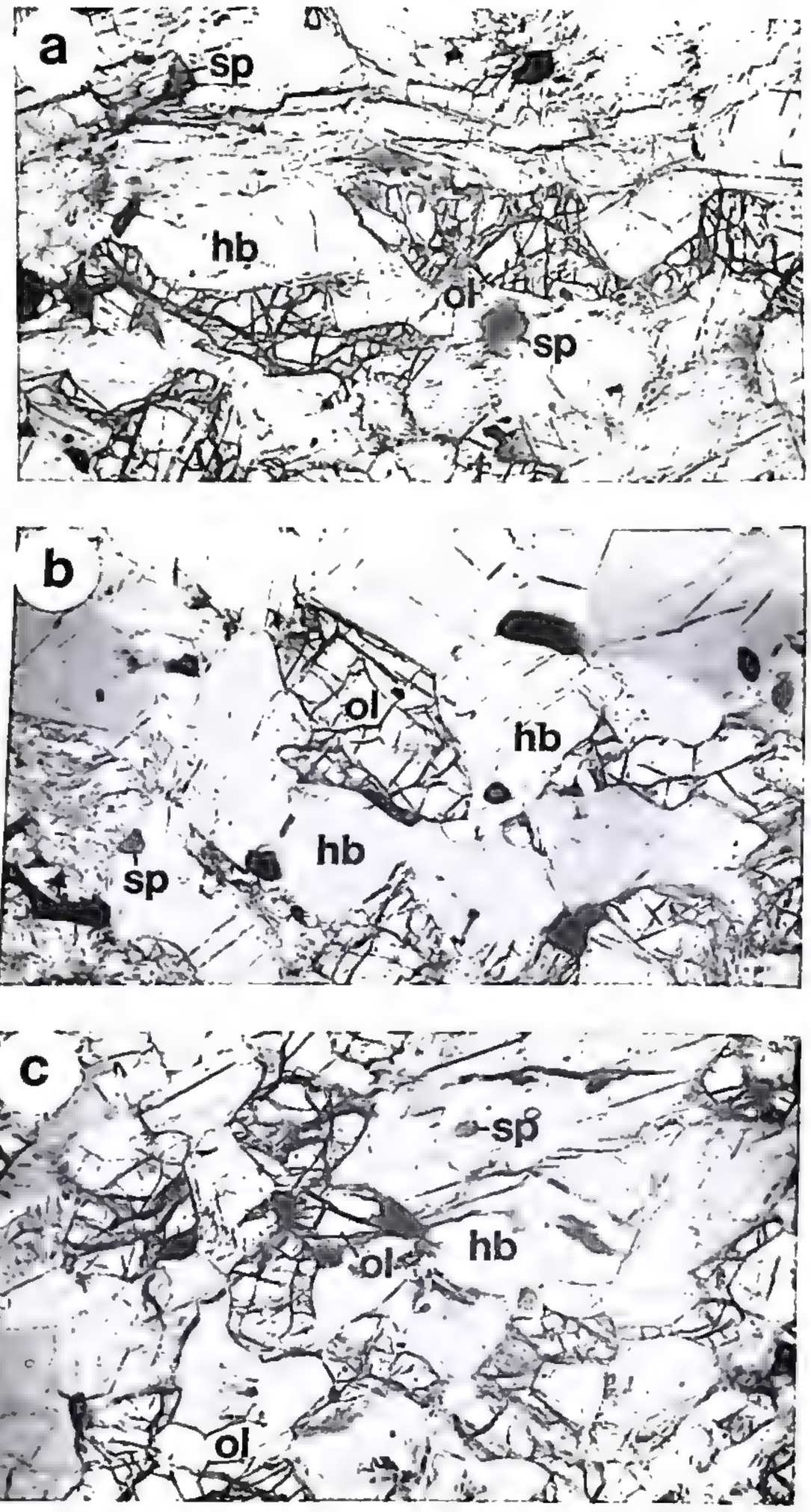

Fig. 3. Photographs of rock slices (type *B* ore) from three separate occurrences. Minerals are "ol" olivine, "sp" spinel, and black ilmenite, all seemingly floating in a sea of hornblende "hb." Individual minerals have strikingly similar chemical compositions and analogous textures in each slice, suggesting the rocks may have been derived from the same locality. Sources of specimens (slices): a) cobble from beach, Smerwick Harbour (Ireland), b) specimen broken from solid rock, Countess of Sussex Mine (Baffin Island), c) piece of rock from the Dartford Manor House (England). Bar scale is 1 mm.

Silver varied considerably. It ranged from less than 0.1 part per million to 0.4 part per million, but even the highest value is less than 1/1000 that regarded as economically interesting today. One wonders why, in 1579, Richard Newton had persisted in his suit for the ore, in the face of new analyses showing low values, that were then common knowledge in England.

Down through the years, these rocks, no longer considered valuable, have received several designations. In non-technical literature it has been commonplace to classify them simply as "fools gold."[26] This terminology should now be laid to rest. In fact, the rock is unusually low in the essential ingredient of "fools gold" *viz.* pyrite. Minerals in mine and cobbles are about 95% silicates and 5% oxides, and the rock is therefore a silicate rock.

Dún-an-Óir is well known to geologists and a special excursion along the shoreline, immediately below the fort, has recently been outlined by Horne.[27] Failure to recognize the nature of the ore has, no doubt, delayed its discovery at this locality.

Epilogue

We may now address the questions of the fate of the crew, the ore and the ship. Presumably the men made their way back to England in late November or early December 1578, because a London document, dated 10 March 1579 [n.s.], shows that each miner had been paid 7 months' wages (which included November).[28]

Whether Newton ever took delivery of his ore is not definitely known, though it would seem highly unlikely. By 1579 the bubble had burst and the ore had no value. Most probably it lies buried beneath the heavy turf at Dún-an-Óir. Gerot Desmond notes that the ore was transported *into* the fort[29] and therefore the beach cobbles may represent a mere sampling of the original cargo.

The *Emanuel* is thought to have been abandoned. In mid-1579, the ship was still in Ireland. According to the testimony of Edward Sellman in April, given before the Commissioners at the Exchequer Court, "The Shippe Manewall of bridgwater She was laden full of Ewre but she tarried behind the fleet at Beares Sownd at Metaincognita and came home into Ireland alone and their discharged all her lading wth the owners and keape stylle for their fraight by Order of the Queens Ma^{ties} Councell."[30] On 21 June 1580 she was viewed by Nicholas White as a hollow wreck, still holding some ore (the "carcas and stones" of a ship which "hadpened to press upon the sandes").[31] This can be regarded as the last official and indisputable sighting of the ship. Judging from the description of Boate,[32] by late 16th century this part of Ireland was denuded of forest, and timber for ship repair was scarce. Skilled carpenters were non-existent. There is no mention of this vessel in the official maritime inventories of England nor in the Water Bailiff's Accounts for Bridgwater from 1580 through 1582. It is doubtful whether the ship was ever repaired and refloated.

After this incident, Newton returned to trading, no doubt wiith fortunes seriously impaired through the loss of his *buss*. At Bridgwater, he was reduced to barge traffic for the municipality. Occasionally, as in 1582, payments to him were in arrears.[33]

In late fall or early winter 1578-79, ore was removed from the *Emanuel*. After unloading, the ship would have beached further inland, probably well within the tidal range. Here it is unlikely she would have remained intact for any length of time, with her timbers prey to the ravages of the sea and the local inhabitants. In early November 1580, at the onset of the siege of Smerwick, Admiral Wynter sketched a panorama of the harbour.[34] Amongst the ships, is an open, demasted wreck in Coosbaun Cove, immediately south of the fort. Though labelled "the broken Spannyard" there is no record of a Spanish vessel destroyed here in a previous skirmish. Possibly this represents the *Emanuel*.

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elements in the earth's crust and its major tectonic units" (1966), *Scientia Sinica*, vol. 15, no. 2, pp. 258-272.

26. For example W. M. McFee, *The Life of Sir Martin Frobisher* (New York, 1928), p. 105 and Brendan Lehane, *The Northwest Passage* (Alexandria, 1981), p. 32.

27. Ralph R. Horne, "Geological guide to the Dingle Peninsula," *Geological Survey of Ireland* (1976), Guide Series no. 1, pp. 34-35.

28. BL, Add. 39852, fol. 111R.

29. PRO, SP 63, no. 15, 9 Jan. 1579.

30. "The booke of Account of Edward Sellman," BL, Add. 39852, fol. 119V, made up 20 March 1579, delivered to the Commissioners April 1579. Reference also made to the *Emanuel* in Ireland in Martin Frobisher's testimony ("Mr furbishers accoumpt), *ibid.*, fols 124V, 126V, 127R, 210R, made up 21 January 1579, delivered to the Commissioners April 1579.

31. Nicholas White to Lord Burghley, PRO, SP 63, vol. 74, no. 56, 22 July 1580. Entry in diary for 21 June 1580.

32. Gerard Boate, *Irelands Naturall History* (London, 1652), pp. 119-122.

33. SRO, Water Bailiff Accounts, D/B/bw 1471 (1582).

34. Map by William Wynter, "The Coming into Smerwick howe it lyethe." PRO, MPF 75 [Nov. 1580].

Alternately, in late-1580, the wreckage may have been cleared away by Piers Rice, in anticipation of the landing of an Italian-Spanish force. Later visitors to the harbour make no mention of the remains of the *Emanuel*. Thus John White, governor of the Virginia colony, anchored here 16 October 1587, but notes no vessel other than "a Hulke of Dublin and a pinesse of Hampton riding."[35] Regardless of which alternative is correct, a portion of the *Emanuel* and her cargo, including 8 tons of "black ore," probably lie in the shallows off Dún-an-Óir.

35. Richard Hakluyt, *The Principal Navigations, Voyages, Traffiques and Discoueries of the English Nation . . .* (London, 1600), vol. 3, p. 286.

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American Steam Navigation in China, 1845-1878

EDWARD KENNETH HAVILAND

SOME twenty-five years have passed since the publication of the last of the author's series of papers on American steam navigation in China in volumes XVI-XVIII of *The American Neptune,* and inasmuch as considerable additional information has come to light in the meantime and the prospects of finding much further material appear slight, it has seemed worthwhile to put the additional information into definitive form. For convenience in referring to the original papers, the topics will be treated in the same order.

I. EARLY DAYS OF STEAM NAVIGATION IN CHINA

More detailed histories of *Diana* and *Jardine* are to be found in the author's paper, "Early Steam Navigation in China—Hongkong and the Canton River" (abbreviated as *ESNC* I), *The American Neptune* XXII.1 (1962) 5-44. In particular, *Diana* was never erected in China, but the machinery placed in a new hull, constructed at Calcutta. This steamer was acquired by the Hon. East India Company in 1824 and sold to the Burmese Government in 1826.[1]

R. B. Forbes' *Edith* (1844), while owned by the United States Navy, stranded fifteen miles north of Point Conception about 9:45 P.M. on 24 August 1849 and was abandoned on the 26th.[2]

Fi Wan (Fei Wan), British Official Number 41,236, was first registered at Hongkong as 31/1862 on 16 October 1862 with the following owners (all engineers of Victoria, Hongkong): Hugh McDougall, 22/64; Samuel Spechley, 21/64; James Henderson, 21/64. This effectively represented ownership by McDougall & Company, her builders, but whether she represented a speculation or had been left on their hands is not now clear. In any case she spent most of her time laid up and Bowra & Company were advertising her for sale by auction on 10 August 1866.[3] It would appear that no sale took place at that time, as the steamer is still listed in the name of McDougall & Company in the shipping news at the end of the year, but her register was closed as of 30 August 1867 on the ground that she had been sold to an American subject. This evidently represented her purchase (probably earlier in 1867) by Captain James B. Endicott, who renamed her *Spec.*

Captain Endicott's *Lily,* which had been placed in coastwise service after the breaking out of the Second Anglo-Chinese War and was later laid up, was sold to the French Government in the latter part of 1858 for service in Cochin China. As of January 1859 she was at Whampoa, where her deck houses were removed to fit her better for war service.[4]

Confucius was launched on 2 February 1853. Her first register was dated 6 April.[5]

II. RUSSELL & COMPANY AND ASSOCIATED OWNERSHIPS

Antelope was registered British at Hongkong as 26/1862. On the night of 28 November 1863, while on her way to Hankow with mandarin troops, she got ashore near Tatung, a little above Nanking, and her boiler burst while she was endeavoring to back off. Forty Chinese were killed, besides the chief engineer. The second engineer was badly injured, and the ship appears to have been a total loss.[6]

Willamette (1849) was not a propeller, but a paddle steamer with inclined engines, 31", 31" × 7', by Harlan & Hollingsworth, of which plans are at the Mariners' Museum, Newport News, Virginia.

1. See J. J. Colledge, "Ships of the Royal Navy" (Newton Abbot, 1969) vol. I, p. 163.

2. See 32nd Congress, 2nd Session, House Miscellaneous Document No. 22 (Washington, 1853).

3. Advertisement dated 27 July in the *Hongkong Daily Press (HKDP),* 30 July 1866.

4. *HKDP,* 18 January 1859.

5. From Notes of the late Elwin M. Eldredge at Mariners Museum.

6. *Mitchell's Maritime Register,* 30 January 1864.

Ship *Golden Age*, 1853
Courtesy Eldredge Collection
Mariners' Museum, Newport News, VA.

The French warship *Saigon*, ex-*Peiho* (1858) was wrecked on 13 June 1865.

It appears that Russell & Company actually sold *White Cloud* in the fall of 1865 to Augustine Heard & Company, and the latter transferred her not long afterward to the Hongkong, Canton & Macao Steamboat Company.[7]

A detailed account of the burning of *Hankow* (1860) at Canton on 21 July 1865 is to be found in the author's paper, "Early Steam Navigation in China—Hongkong and the Canton River, 1858-1867" (abbreviated as *ESNC* III), *The American Neptune* XXXIV.1 (1974) 39.

Oriflamme (1863) was very nearly lost in the typhoon of 29/30 June 1865, in which the steamers *Corea* and *Chanticleer* were lost with all on board. *Oriflamme* was more fortunate, but barely escaped, as she had nine feet of water in her hold and her fires were put out. The *Hongkong Daily Press* for 13 July stated that it had been imprudent of the masters of all three ships to run their vessels into the vortex of a typhoon when they must have known, not only what they were doing, but how to avoid the danger. The *Press* for 19 July contained a letter from Captain Lane of *Oriflamme*, defending himself and the other masters. He stated that when they left Hongkong the barometer was stable at about 29.75 inches and no typhoon warning was posted (as a matter of fact, Hongkong did not get the storm). Moreover, many fishing boats were out, and these usually take shelter when a typhoon is imminent. The *Daily Press*, however, was not impressed by the explanation and continued to feel that the three masters were guilty of bad judgment.

Varuna (1863) was sold by C. H. Mallory to J.M. Forbes & Company (J. M. Forbes and W. H. Forbes) for $92,500.[8] The *Daily Press* for 10 July 1866 gives somewhat different dates for *Varuna*'s voyage to China from those given by the *Boston Shipping List*. According to the *Press* she left New York on 27 March, Bahia on 26 April, Mauritius on 7 June, Singapore on 1 July and Saigon on 6 July, arriving at Hongkong on the 10th with general cargo consigned to Russell & Company. Fine weather was reported throughout the passage. *Varuna* was taken to Japan for sale near the end of July 1866.[9] As she had arrived at Shanghai only on 25 July, it would seem that her only voyages in the Far East for Russell & Company were one from Hongkong to Shanghai and one from Shanghai to Nagasaki. She acquired provisional British papers prior to her sale for $115,000 to the Chosu-han in October 1866, whereupon she was renamed *No. 2 Hein Maru*.[10] The Japanese purchasers later renamed her *Genkai Maru* but did not keep her long, selling her about April 1867 to Glover & Company in part payment for two new ships, whereupon she was registered at Hongkong as 11/1867 under the name *Genkai* and with the O.N.50,670. While in Glover's service *Genkai* foundered off Chelang Point, about seventy miles from Hongkong, on 9 September 1867. Crew and passengers escaped to shore, with the exception of four firemen and a cook, who drifted away in a cutter. The vessel foundered around 8 P.M., taking some sixty Chinese plunderers down with her. On the 12th the survivors were rescued by *Tai-wan* and taken to Hongkong.[11]

The correct name of *Yung Hai An* after her sale as *Lancefield* to the Chosu-han in 1862 was *Nimbo*, not *Nimro*. The name *Koshin*, sometimes given her, is due to an incorrect copying of the Chosu-han's fleet list at some time.

Scotland (1856) was renamed *Heian Maru* after her

7. See the author's paper, "Early Steam Navigation in China—Hongkong and the Canton River, 1858-1867" (later referred to as *ESNC* III), *The American Neptune* XXXIV.1 (1974) 17-58, especially p. 42.

8. James P. Baughman, *The Mallorys of Mystic* (Middletown, Connecticut, 1972), p. 140.

9. Letter of Henry Sturgis Grew to his father and mother, dated at Shanghai 5 August 1866 (at Peabody Museum, Salem).

10. T. M. Milne, *Steam Vessels Sold to or Reportedly Sold to Japan up to 1870* (Tokyo, 1964) and *Addenda* (Ste. Maxime, France, 1974). The Groom List (See the author's "Early Steam Navigation in China—Overseas Services to 1861" (later referred to as *ESNC* II), *The American Neptune* XXVI.1 (1966) footnote 138) states that she was sold in November.

11. See *North China Herald*, 21 September 1867.

purchase by the Satsuma-han. It is said that she was wrecked on Awaji Island on 3 January 1868, but 1871 seems a better date for her final loss.[12]

Ta Yung (1858) was sold by Russell & Company, probably in the latter part of 1868, to James Hardie, who sent her to Alt & Company, Negasaki for sale to the Japanese at not less than $20,000, and the latter sale is probably the one that took place on 16 December 1868. In June 1870 she was bought by the China & Japan Trading Company (H. Fogg & Company, Managers) and placed under the American flag. It seems likely that she was their *Kinsatsu*, said to be 75 tons, lost at Hiogo in the typhoon of 6 July 1871.[13]

Express (1861) had been built by J. & G. Thomson, Clydebank[14] for Lyall, Still & Company of Hongkong. Further details of her history up to her sale to Russell & Company may be found in *ESNC* III.

III. The Shanghai Steam Navigation Company

Kiangse (1862) during the two and a half months that she was in Japan in 1874 was under charter to the China Trans-Pacific Steamship Company for their Shanghai-Kobe-Yokohama feeder service pending the return of *Ly-ee-moon* from her conversion to screw propulsion in the United Kingdom. However, *Kiangse* made only a few trips on the route before the Company failed.[15]

Huquang (1862) left New York for China on 26 May 1862 (and not on 6 May) according to the *Boston Shipping List* for 9 July 1862 and to the Eldredge Notes, Mariners' Museum. On Sunday, 19 August 1866 *Huquang* arrived at Kiukiang about 6 P.M. on her way downriver and was secured as usual alongside Russell & Company's hulks. About an hour later there was a report of something burning, which could not be verified, but some twenty minutes after that faint wreaths of smoke were seen to be issuing from one of the manholes leading to the coal bunkers in the forward part of the ship. The fire hose was speedily brought to bear on the seat of the supposed fire, and soon after the water began to flow all signs of burning ceased. Immediately afterward, however, a volume of smoke, followed by a sheet of flames, burst from a small scuttle a little farther forward and drove off those fighting the fire, and by the time they searched the deck the vessel was in flames from end to end, whereupon the steamer was cut adrift and later towed out into the stream. About 10:30 her paddle wheels fell outward and a little before midnight the hull broke in two and sank, with only the flagstaff and top of the funnel showing. All officers and crew were saved, though some Chinese were supposed to have been drowned.[16]

Fychow (originally *Nautilus*) (1864) under the name *Koyonoga* was on the Mitsubishi fleet from November 1871 to April 1872.

Kiangteen, ex-*Hupeh*, ex-*Moning* (1869) was sunk as a blockship at Shanghai about 1938.[17]

IV. Augustine Heard and Company

Fire Dart (1860) was apparently not sold by A. Heard & Company directly to the Hongkong, Canton & Macao Steamboat Company in 1865, but very shortly passed into the hands of the latter.[18]

Shantung (1861) went on a trial trip on Monday, 8 July 1861,[19] but apparently did not leave New York until 15 August. She sailed from Mauritius on 28 October, bound for Hongkong, where she arrived on 26 November 1861.[20] Following her sale in Japan she was renamed *Kyorin Maru* and wrecked at Matsushime, near Nagasaki, in June 1863. Heard family records (at Peabody Museum) state that Heard & Company continued to manage her after her sale until she was lost.

St. Theodosius (later *Soochow*) (1858) was in fact built for the Amur Company. On her way out, under Captain Alexandroff, she left Antwerp on 6 January 1859 and arrived at Hongkong on 1 September.[21]

Lotus (1861) was renamed *Shoho Maru* and lost in an interclan engagement off Shikoku in January 1868.

Sir George Grey (1859) was renamed *Aotaka/Sei-O Maru* by the Japanese.

While in the Star Line, *Suwonada*'s first arrival at New Orleans was on 20 September 1864 and her last departure from that port on 19 November 1864.

12. T. M. Milne, op. cit.

13. T. M. Milne, op. cit; also in letter of 20 November 1973.

14. For this information I am indebted to A. D. Blue, Ph.D. of Edinburgh.

15. Letter of T. M. Milne, 20 November 1973.

16. *Hongkong Daily Press*, 28 August 1866, quoting the *Shanghai Recorder*.

17. *Sea Breezes*, October 1949, p. 305.

18. See *ESNC III*.

19. New York Tribune, 10 July 1861, quoted in the Eldredge Notes, Mariners Museum.

20. *Boston Shipping List*, 5 February 1862.

21. *Daily Press*, 2 September 1859.

Abbotsford (1870), *Blythwoode* (1870) and *Trafalgar* (1871) were operated by Augustine Heard & Company under charter. Typical charters (in Heard Collection, Baker Library, Harvard University) are the following:

Abbotsford, for four months from 16 May 1872, with the option of renewing for two months, at Mex $5,500 per month.

Blythwoode, in August 1872 for two months, with the option of renewing for two months, at Mex $6,000 per month.

Trafalger, for six months from 13 August 1872, at Mex $6,000 per month.

William Miller was doubtless operated under charter also, but no copy of such a document has thus far been located.

Meteor (1850) and *Meteor* (1858) were different ships. The former was an iron paddle steamer of 136.57 tons gross, built for a tug at Greenwich in 1849/1850. Following her arrival at Shanghai in December 1856, she seems to have been more or less regularly employed around there. As of June 1860 *Meteor,* under Captain MacDonnell was under charter to the French Government. She does not appear to have had any American connection.

The other *Meteor* was a steamer of 176 tons, built of teak, iron fastened, at Bangkok, according to a report of Daniel Maclean, surveyor, dated at Bangkok on 27 January 1862. In a letter dated at Hongkong on 23 and 25 November 1861, Captain Richard S. Gough, who had for several years following her sale to the Chinese been commander of *Confucius* (1853), authorized Augustine Heard & Company to purchase *Meteor* for his account through their agents in Siam for $20,000. If the purchase price and subsequent charges were paid before the steamer's arrival at Hongkong, she was to be consigned to Captain Gough, otherwise she was to be consigned to A. Heard & Company at Shanghai, they were to hold her until she was paid for.

Accordingly, Heard & Company purchased *Meteor* though J. S. Parker and S. P. Goodale, and under Captain Marcus L. Woodard (not Woodward) she set out for China and Captain Gough's troubles began. In the first place, repairs at Bangkok cost $1362.98, instead of an estimated $400 or $500. Furthermore, the vessel met with heavy weather after leaving Bangkok and had to put in at Singapore for further repairs. Captain Gough was naturally not much pleased and claimed that *Meteor* had been sold under false pretences (having been on the rocks while in the towing business) and that the survey at Bangkok was incompetent or false. On 7 March 1862 he wrote from Shanghai, "The news in your letter regarding the *Meteor* is very unpleasant, as I am badly in need of her."

On the completion of repairs, the steamer left Singapore on 17 April 1862 with cargo for China, dispatched by Hutchinson & Company. As of 27 February Captain Gough's bill was $27,356.35 and by the time the ship reached Shanghai it must have been substantially more, and from the fact that she operated consigned to Heard & Company following her arrival it may be inferred in view of the above agreement that he could not or would not pay for her, so that Heards had her on their hands until the sale to P. Conklin. Not long after the arrival of *Meteor* Captain Gough lost his life in the explosion of *Union Star.*

It now appears that the steamer *Rose,* in which Augustine Heard & Company had a one-fourth interest when she was trading on the lower Yangtsze and to Ningpo in 1865, was in fact Y. J. Murrow's postal steamer *Rose* of 1855. The latter had been sold in April 1858 by N. R. Masson, as receiver for Murrow, Stephenson & Company to Thomas Hunt & Company as agents for Captain J. B. Endicott,[22] by whom she was operated between Hongkong and Macao at the beginning of 1859 and chartered to the French for river work in Cochin China later in the year. In August 1861 Captain Endicott sent *Rose* from Hongkong to Shanghai, where she arrived on 5 August and a few days later was placed on the route between Shanghai and Ningpo, on which she served as late as 11 September 1861. At this time her gross tonnage, originally 105, was given as 125. By the end of the year *Rose* was in General Ward's fleet[23] and later she was in the Chinese Transport Service, being laid up as of 18 February 1863.[24] As a government vessel her movements were not always recorded, but it appears that she was soon returned to service and used between Shanghai and Ningpo, as she arrived at the former port from the latter on 19 March 1863 and sailed between them for the next couple of months. As of 27 February 1864 she was reported as laid up at Shanghai. American Consular Returns dated 23 January 1865 list the steamer *Rose,* 134 tons, with Augustine Heard & Company as registered owners, and from this and other evidence it

22. *China Mail,* 20 May 1858.

23. Mixed Court, C. E. Hill vs. Estate of Yang Taikee, *North China Herald,* 21 January 1875 and 28 January 1875.

24. *Friend of China,* 18 February 1863.

would seem that they acquired her about the beginning of 1865.

According to a survey by Captain Dan Patridge (in the Heard Collection, Baker Library, Harvard University) *Rose* was an iron paddle vessel of 119 tons, 130′ × 17′ × 7′, with a loaded draft of 4′6″. When compared with the postal steamer *Rose*'s original gross tonnage, 105, and dimensions 99.5′ × 18′ × 7.7′, the data previously mentioned strongly suggest (allowing for deviations in the surveys) that the two *Roses* were the same and that in the meantime she had been lengthened, either after her stranding in 1856 or after her purchase by Captain Endicott two years later. As of 23 May 1865 the owners of *Rose* were: Dan Patridge, ¼; H. Roundy, ¼; Augustine Heard & Company, ¼; H. Lawrence, ⅛; J. K. Falls, ⅛. She was stated to have made forty-six voyages from Shanghai to Ningpo prior to the survey, of which the earlier were doubtless under Captain Endicott's ownership and the later in Chinese Government service.

Heards as managing owners employed *Rose* on the lower Yangtsze, primarily or entirely between Shanghai and Chinkiang, in the earlier part of 1865, but the service seems not to have been profitable, as, toward the end of the year or soon after she returned to Hongkong and appears as of February 1866 under the name of *Lintin* (stated formerly to have been named *Rose*) and ownership of Compradore Acheong. As of 2 February 1867 (according to the *Daily Press*) she was chartered to the Provincial Viceroy at Canton, and later in the year she was reported waterlogged at Hongkong following a typhoon—the latest information we have on her.

As of 19 March 1863 there appears in the American Consular Returns of Shipping at Shanghai a steamer *Mandarin*, 134 tons, owned by A. L. Freeman. He operated her on the Shanghai–Ningpo line for the next few months, but later in the year she was sold to J. H. Wignall and placed under the British flag.[25] As of 23 January 1865 a steamer *Rose*, 134 tons, was listed in the American Consular Returns with A. Heard & Company as registered owners. In spite of the coincidence of these tonnages, it appears that the two ships were different, Heards' steamer *Rose* being the former postal steamer for reasons given above, while the latter, while in Chinese Transport Service, was operating between Shanghai and Ningpo at the same time as *Mandarin*. In fact, sometimes the two steamers arrived at or departed from Shanghai on the same day, while at other times the days of their arrival and departure were different.

Mars (ex-*Indore*) (1862) was in service between Kobe and Yokohama from November 1868 to April 1869.

Ashuelot, then named *Takao* or *Takao Maru*, was driven ashore by Imperial ships and burnt in 1869.

Cuyahoga was acquired in August 1868 by Kichu Kanzu Shiemon, a merchant of Hyogo, and renamed *Setzen/Setsu Maru*.

Kankakee was renamed *Kawachi* by the Japanese Imperial Government and transferred to the Okayama-han in August 1869. Returned by the Provincial Government to the Imperial Government in 1890 and presumably broken up.

Kewanee was not a total loss in the explosion of April 1869. The *Far East* for 16 July 1870 reported that she had been raised some months before by the Japanese without any foreign assistence and, having been docked and refitted, was then ready for sea. Thereafter she was operated by the Ministry of Finance as *Mushashi*.[26]

V. Olyphant & Company

Viola was sold by Jardine, Matheson & Company to the Netherlands Trading Society about the end of 1862 and the latter sold her to Satsuma, who renamed her *Kaimon Maru* in 1864. She became *Kiushu* in 1866 upon her sale to Glover & Company, who operated her on a joint account with Satsuma.

VI. Other American Shipowners in China

Captain J. B. Endicott sent *Rose* from Hongkong to Shanghai in August 1861, not in May. Further information regarding this steamer has already been given under A. Heard & Company.

Kumsing (1862), owned by F. H. Haskell, a partner in Thomas Hunt & Company, was acquired by the Fukui (Echizen)-han and renamed *Kokuryu Maru*. Later as a naval training ship, she was renamed *Kinsu* or *Kinsei*.

In the latter part of 1857 and early 1858, W. M.

25. *CRS*, Shanghai. See also the author's "Early Steam Navigation in China—The Yangtsze River, 1861-1867" (later referred to as *ESNC* IV), *The American Neptune* XLIII.3 (1983) especially p. 215.

26. T. M. Milne, op. cit. (1964).

Robinet (See under Thomas Hunt & Company) owned a half-interest in the steamer *E.H. Green* (ex-*Unicorn*). The other owner is not stated, but was probably his brother, Captain Henry Robinet. Owing to the financial difficulties of W.M. Robinet & Company, the vessel was sold about October 1858 for a little over $2,000.00, the identity of the purchasers not being given.[27]

Cricket, owned for a time by Henry G. Ward, was the former *Meelee*, built at Hongkong in 1859. Shortly after the piracy on her on 30 April 1861 she was sold to Captain Norman Hill, the master of *Ly-ee-moon*, in whose name she was registered as a British steamer at Hongkong as 7/1861 under the name of *Cricket*. He sent her to Shanghai, where she arrived on 15 July 1861. For a short time after her arrival she traded on the Yangtsze, with Dent & Company as consignees, until her purchase by Henry G. Ward in the late summer.

Hiram Fogg & Company formed the China & Japan Trading Company in 1869 and were its managers.

Albert L. Freeman was administrator of the estate of General F. T. Ward, a post which he resigned in June 1864, whereupon *Martin White* and *Tah Wah* were turned over to the custody of George F. Seward, American consul at Shanghai.[28] *Martin White* was sold in 1866 to the Kurume-han and renamed *Shinpu Maru*.

The former P. & O. steamer *Chusan* (1852), when sold for $80,000 by Adrian & Company to the Matsuyama-han about 1866 was renamed *Kofuyo*. In 1868 she was captured by the Chosu-han and renamed *Kayo*, being taken over by the Japanese Government in 1871 and sold to S. C. Farnham the following year. Farnham's *Nancai* later became *Wakamurasaki*.

Maria, owned by F. H. B. Jenkins in 1867-1868, had been built in 1839 at Littlehampton, Sussex as the sailing vessel *Ann* and converted to a steamer in 1846, being renamed *Maria* in 1860. Further details of *Ann* and of her service in China are to be found in *ESNC* I and *ESNC* III, passim. Between the periods of American ownership she was British, owned by William Davidson, a merchant of Ningpo.

Union (1854) was acquired in December 1865 by the Chosu-han through Glover & Company and renamed *Otsucho Maru*. Within two months she was resold to the Satsuma-han for $60,000 and named *Sakurajima Maru*. In July 1871 she was sold by Satsuma to Odaya, a merchant of Bakan, but apparently had reverted to her original name when acquired by D. R. Spedding about 1872.

Walsh, Hall & Company was founded in May 1862 by the merger of Thomas Walsh & Company and George Hall and Company. The yacht *Emperor*, upon her arrival in Japan in July 1858 was renamed *Banryu Maru*, not *Hendrui Maru* as stated in *ASNC*. While in American ownership she reverted to her original name, but became *Banryu* again after her sale by Walsh, Hall & Company to the Japanese Government in 1872. Shortly after this her name was changed to *Raiden Maru* and from 1877 to 1888 she served in the Japanese Navy as *Raiden*. Later she became a whaler as *Raiden Maru* and was broken up at Osaka in the late 1890s, then owned by Nihon Kioritsu Kisen Kaisha.

Other steamers owned by or connected with Thomas Walsh or Walsh, Hall & Company upon sale to the Japanese were renamed as follows: *Contest* (1859) became *Hakuno Maru; Kaga-no-kami* (1861) became *Hijun/Yoshun*. *Viborg* was a wooden screw steamer of 238 tons register, built at Lübeck in 1847. In 1861 she became British as *Thames*, O.N.43,953, registered in London as 259/1861. *Mercantile Navy List* for 1865 gives her owner as James Anderson, London. She was acquired by Walsh, Hall & Company in August 1868 and given back her original name. In January 1869 she was sold to the Chosu-han and renamed *Genko Maru*. She went ashore in 1870 but was salved and finally wrecked in 1873. The name *Hosho Maru* is also given for her.

Taoutai (1862) of N. L. McCready & Company became *No. 2 Yakumo Maru*.

P. Conklin acquired *Meteor* (1858) from A. Heard & Company (q.v.) about August 1862 and sold her to the Shogunate at Hakodate for $47,000 in March 1864, whereupon she was renamed *Shinsoku* or *Junsoku Maru*. She served in Enomoto's fleet and was stranded and wrecked at Ezashi, November 1868.

China (1862), sometime owned by Captain B. R. Johnson, was renamed *Utsusemi/Keigaka Maru* following her sale to Japan.

Soochow of the Ningpo S.N. Co., formerly *Hoan Maru* and subsequently *Ngankin* and *Kiangping*, was not originally the screw steamer *Japan* built by Hedderwick & Company in 1865, as the latter vessel was, according to her British document, broken up at Singapore about 1885, whereas the former lasted until

27. Supreme Court of Hongkong in re W. M. Robinet, 29 October 1858, reported in *China Mail Supplement*, 11 November 1858.

28. See *ESNC IV*, footnote 98.

about 1894. *Soochow* appears to have been the iron paddle steamer *Japan*, 178′ × 25.4′ × 9.55′, 368 tons gross and 255 tons net, sold to Japan in 1866, which was advertised for sale in the *Japan Daily Herald* for 8 April 1874. It has not thus far been possible to identify this *Japan* further.

VII. British and Other Foreign Owners of American Ships

Dent & Company's *Yangtsze* (1857) was renamed *Shokaku Maru* by the Japanese and is said to have been wrecked near Ajiro (Izu) in November 1868 while being used against Enomoto. Since Captain Batchelder's *Yangtsze* (1868), which was stated to have received the boilers of the older *Yangtsze*, ran her trials on 23 October 1868, it seems probable, assuming the date of the wreck of *Shokaku Maru* is correct, that *Yangtsze* (1868) received the original boilers of *Yangtsze* (1857), rebuilt after the reboilering of the latter in 1861.

Lindsay & Company's *Promise* (1863) was sold in 1865 to the Kokura-han and in 1866 resold to the Shogunate, who renamed her *Hiryu Maru*. In April 1868 she was transferred to the Imperial Government and by them as part payment for *Uncle Sam* to J. M. Batchelder, who renamed her *Yokohama Maru* and appears to have disposed of a part interest in her to Walsh, Hall & Company as previously mentioned in *ASNC*.

David Reid's *Columbia* (1850) was actually sold to Irikiya Jubei of the Chukuzen-han and renamed *Otori/Taiho Maru*, being the first steamer owned by a Japanese individual. She was under the British flag from May to September 1866 when brought to Shanghai by Glover & Company for overhaul and was probably the *Tai O Maru* wrecked near Akita in June 1871.

VIII. The Yokohama–Shanghai Service of the Pacific Mail

The *Nagasaki Express* for 10 August 1872 says, "The Pacific Mail *Golden Age* goes into dock at Shanghai for repairs on her arrival there. They will occupy some little time, and it is reported that her place next voyage will be temporarily filled by the P.M.S.S. *Relief*, late *Osaka*, which vessel came off the slip this afternoon and will sail for Shanghai on Monday afternoon."

This steamer was originally *Shanghai* (1851), British O.N.30712, an iron vessel of 412.77 tons register, built for the P. & O. S.N. Co., and the first screw steamer in their fleet. On 25 June 1862 they sold her to William Dickenson of London, who sold her on 25 May 1863 to the Prince of Tosa for Mex $115,000. The Tosa-han renamed her *Nankai Maru* and traded her to Adrian & Company in exchange for *China* in October 1866 and she was registered British as 6/1867 at Hongkong under the name *Osaka* and the ownership of George Sanders Burdis, master mariner, who was on Adrian's staff. Although her new British document gives her (correctly) as built at London in 1851, her previous identity seems not to have been recognized and she received the new O.N.50669. Burdis owned her until 2 October 1869, when she was again sold Japanese, her British registry being closed on 20 July 1870. The date 2 October 1869 may be based on Japanese records and not be reliable. In any case, the *North China Herald* for 1 February 1870 records the sale of *Osaka* to the Chiji of Todo for $80,000. British consular records say for $60,000 to the Tsu-han, who were her owners when she was stranded in a typhoon at Noge, near Yokohama, in August 1871, and in a newspaper cutting covering the typhoon sent by the P. & O. agent at Kobe to the home office (later in the P. & O. Museum)[29] *Osaka* is referred to as "our old *Shanghai*"—which completely establishes the identity of *Relief*, purchased by the Pacific Mail in July 1872. That they got quite a bargain is suggested by the fact that on their books she was carried at the very modest figure of US $11,000. After reconditioning, she entered Pacific Mail service on 15 August 1872, as described in *ASNC*.

Further information regarding the Yokohama–Shanghai service of the Pacific Mail is to be found in William D. Wray's "Mitsubishi and the N.Y.K., 1870-1914" (Harvard University Press, 1984), especially pages 84-86.

For the material in this paper the author is especially indebted to the late T. M. Milne, sometime chairman of Imperial Chemical Industries (Japan), Ltd., whose knowledge of Japanese enabled him to make comprehensive investigations of Western steamers sold to Japan in the Tokugawa period. He is also greatly indebted to the late Elwin M. Eldredge, whose extensive notes on American steam vessels are now at the Mariners' Museum, and to various other corre-

29. Letter of T. M. Milne, 3 July 1962.

spondents, including Mr. John L. Lochhead of Winthrop, Massachusetts and Mr. Robert W. Parkinson of Berkeley, California.

Appendix III

Augusta (1867). Japanese records give the dimensions 215′ × 44′ × —.

Firefly (1846), G. Tay, master, was 46′4″ × 9′4″ × 4′9″, 19$^{8}/_{95}$ tons burden, according to her "Coasting License."

Fohkien (1863). Delete footnote after engine builders. The engine of this steamer had come from the Great Lakes steamer *St. Lawrence* (1853).

Lily (1856) was a paddle steamer with low pressure engines by H. W. Harman, 38″, 38″ × 3.9′.

Plymouth Rock (1863) had engines from the Lake Erie steamer *Plymouth Rock* (1854).

Sir George Grey (1859). British consular records give her registered tonnage as 506.

Soochow (1858). There is a small inconsistency in the tonnage given by her British document, but it is not now possible to say which figures are correct.

United Service (1857). Gross tonnage should be 1028.00.

Yung Hai An (1855). Gross tonnage should be 1054.93.

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Telos, the Last American Brig and Bangor River's "Class of '83"

LAWRENCE CARROLL ALLIN

OVER one hundred years ago, on October 7, 1883, an era for both Maine and for American history ended when the Brig *Telos,* the last commercial sailing vessel built in Bangor, Maine, slid into the Penobscot River. Four other vessels had preceded her into "Bangor River" (the Penobscot) that year. *Telos* is unique in the history of Bangor and of the United States because she was the last of her rig constructed Downeast and in the United States.

Telos' masts and sails set her off from the quartet of three-masted schooners launched into Bangor River during 1883. She had two masts and carried square sails rather than the fore and aft sails of her coasting cousins.

Brigs like *Telos* had played a major role in the nation's ocean trade since about 1715. They were relatively small; *Telos* measured 389 tons and 127 feet in length. Sometimes called "molasses brigs," they often carried Maine fish and lumber to the West Indies and brought back the milk of sugar cane. The brigs fed raw molasses to the great sugar houses in Portland and to the rum distilleries on the coast. The brigs' small size allowed them to carry cargoes to the West Indies which would not flood island markets and depress prices. Their square sails let them make relatively fast runs on long passages with the wind free. These characteristics made them ideal vessels for foreign trade and let them dance in and out of Caribbean ports with ease. The stories of *Telos'* and her cousins' careers can tell how Bangor River men built, sailed and managed their vessels, and how ice affected their plans.

In April 1883, spring was many days away, and ice clogged the Penobscot. The river was frozen in front of the Barbour and Warren shipyard in Brewer, across the river from Bangor. During winter, shipbuilders S. H. Barbour and William Warren had repaired the schooner *Frank Herbert* where she lay, stuck in the ice. The *Herbert* lay below and blocked the launching ways on which sat Barbour's and Warren's new schooner, *Hattie H. Barbour.*

A tug tried to break the ice and haul away the *Herbert.* Room was needed for the first of 1883's new vessels to enter the water. The tug worked diligently but still took three days to clear away the ice. Then, on April 25, the light green colored *Barbour* took her dip into the cold Penobscot. The *Barbour,* a centerboard schooner, raced down the ways, shot across the river and came to a halt just short of the Eagle Wharf on the Bangor shore.

Captain Charles H. Barbour's new command was like many of her contemporaries. She carried a centerboard, a movable keel; in shallow water, or when coming up Bangor River, the *Barbour*'s centerboard could be raised into its trunk to keep her from running aground.

Penobscot River vessels, built and/or owned in the cross-river cities of Brewer and Bangor, carried four principal cargoes: outbound lumber, ice and bricks, and inbound coal. Bangor had been the undisputed lumber capital of the world, and for years had filled her vessels with long and short timbers and used her scrap lumber to fire clay and make bricks, which became a profit-making ballast for the light timber loads. The sawdust, which flew out of Bangor River's gang saws, became insulation for ice that was cut from the Penobscot in the winter, stacked and shipped around the world in the hot summer. There was money to be made in lumber, ice and bricks and in the vessels used to carry such cargoes. Bangor River men did it all. With the booming paper industry, there was also a demand for coal for the upriver mills, the railroads and even the steamships which carried pulpwood, chips and paper.

Those were the cargoes hauled by Bangor River schooners. As an example, the *Barbour* engaged in a

profitable two-way trade in and out of Bangor. She carried ice from the E. and I. K. Stetson ice houses to Baltimore. After off-loading her ice, *Barbour* then brought coal for the Maine Central Railroad back to Bangor from the Chesapeake Bay ports.

In the summer before the October launchings of *Annie Lord* and the *Telos, Hattie H. Barbour* proved herself in another way. She fulfilled her builders' and owners' desires for speed. She made the 450-mile passage from the Virginia Capes to the Penobscot in only 81 hours.

During the summer of 1883, the schooner *Maud Snare* went over from the Crosby Brothers yard in Bangor. She plunged into the Penobscot on August 5, with her masts stepped, spars set and rigging in place. The sailmaking firms of Mulvaney and Pearson and the S.T. Pearson Company owned in her. These owners, James D. Mulvaney and Simon T. and James D. Pearson, were masters of their craft.

H. P. Oliver, of Morse Lumber Company, with Elbridge Hincks and E. R. Nealley also owned in *Maud Snare*. The ownership of vessels such as *Maud Snare* was held in fractional shares, usually sixty-fourths. Profits, losses and assessments for unusual expenses were parcelled out to the owners on a share basis.

Oliver probably supplied some of *Snare*'s timbers and Hincks and Nealley probably helped fit her out and disposed of her cargoes. Hincks and Nealley owned both a ship chandlery and a coal handling firm. Fred T. Hall, a Bangor grocer, and Alonzo Towle, an engineer for the Maine Central, also owned in the schooner as did Captain James Snare.

An event which occurred before the *Maude Snare*'s maiden voyage illustrates the social niceties of the eighties. The vessel's captain, Elisha W. Snare, gave a reception aboard the schooner for his two daughters. They would sail to Baltimore with their father and then on a year-long foreign voyage with him aboard the *Snare*. Friends from the Star of the East Council of the United Fellowship joined the Snares for "a grand collation of various succulent fruits" at the farewell affair.

During the summer of the Snare sisters' unique finishing, work progressed on the *Edward Stewart, Annie Lord,* and *Telos*. A whisp of autumn rode the air when *Stewart* went over on September Fourth. She slid down the ways with bunting flying in the breeze and launching guests on board. A tug retrieved her, and towed her and her guests back to the E. and I. K. Stetson shipyard on the Brewer shore where she had been built. Then, as was the custom, the guests enjoyed a luncheon aboard the unusual vessel.

Her standing rigging and the exotic woods used in her construction made *Edward Stewart* different. The *Stewart*'s frame, her skelton, consisted of juniper and hard pine. Georgia hard pine formed the schooner's ceiling and planking, and Pennsylvania furnished the pine for her three masts. Ash and black walnut graced her cabin's interior. Knees of Maine hackmatack supported her deck beams and helped give her strength to carry a large spread of canvas.

A Boston firm, Fitch and Joy, manufactured *Stewart*'s rigging and the Bangor River firm of Hennessey and Angley rove it. Edward Angley and Michael, John and James Hennessey constituted the firm. Although used on several Boston-built ships, the rigging itself was new to Bangor River vessels and consisted of iron, rather than wooden, cross trees and iron, rather than hemp, shrouds. Some of her standing rigging was of steel rope wrapped with hemp and coated with tar to prevent their rusting. *Edward Stewart* carried a 1,200-gallon iron water tank rather than the conventional wooden water cask.

Josiah B. Hathorn was *Stewart*'s master builder, the man in charge of her construction, and Terrence F. Cassidy made her blocks and ship's wheel.

Owning shares in *Stewart* were A. G. Dole; J. F. Grinel; C. R. Pendleton; P. W. Pierce; C. A. Severence; E. and I. K. Stetson; Charles Newcomb, a grain merchant and grocer; her captain, Joseph S. Harlow; and the T.J. Stewart Company. The Stetsons and T. J. Stewart stood as industrial barons of Maine's nineteenth century economy with their ownership, building and management of vessels, timberlands, ice houses, mills and factories.

As summer's white clouds glided by, a mild rivalry developed on the opposite banks of the river between the men of the Barbour and Crosby yards. After *Hattie H. Barbour* and *Maud Snare* went over, the Barbour men had stretched the keel of *Annie Lord* while the Crosby gang raised *Telos'* frames. Adzes and broadaxes swung. Chips flew. The race against the coming ice was on.

Work on *Annie Lord,* a sister-ship of *Hattie H. Barbour,* progressed well. The *Lord* had an oak, hackmatack and hard pine frame, white pine decks and an ash-panelled cabin. J. E. Swett fitted her fine joinery work which was overseen by Joseph Nealley her master builder, the man responsible for her overall construction. Hiram Eaton formed her metal work as

the days grew shorter, and a man known only as Saunders shaped her spars. W. F. Hunter undertook the amazingly complex job of rigging her on the stocks, setting up her running rigging before she took her plunge.

As fall came on the river, work progressed on the *Telos* and the Barbour workmen brushed copper paint on the *Lord*'s bottom. The Crosby men filled the space between *Telos'* inner and outer planking with salt which helped to preserve the vessel's wood.

Annie Lord's owners watched the coming of fall with confidence that their vessel would be launched before the river froze. Many of them had businesses which contributed to the schooner's building, sailing and management. Her master, O. J. Kendall of Orrington, owned in her as did his kinsman, Captain N. W. Kendall. Barbour and Warren retained shares in her as did the lumbermen Lysander and Fred H. Strickland, and John L. Cutler and Darius Eddy. Her sailmakers, the Pearsons, held shares in *Annie Lord* as did her plumbers Leighton Davenport and Manley Trask, and the attorney John E. Godfrey.

J. T. Molesworth and Henry Lord also owned in the vessel. Lord had many commercial interests as a commission merchant, ship broker, and ice dealer. *Annie Lord* bore his daughter's name.

Bangor River's warm summer became cool fall and the leaves on High Head turned to red and gold. Then, on launch day, October 3rd, Miss Lord and many of her schoolgirl friends boarded Nichol's barge, a Bangor-based ferry, and crossed to the Brewer shore. The schooner *Annie Lord* sat on the stocks fully-rigged, with all sails bent and ready for sea. Her part-owners, Cutler and Eddy, had a cargo of lumber ready for her to carry to the West Indies. With her friends, Miss Annie Lord rode her namesake down the ways into the Penobscot four days before *Telos* went over.

Painted black and green with her name emblazoned in gold letters on her stern, *Telos* took her dip on October 7th. Her builder's model showed that she had a large carrying capacity and would be a fast sailer. One account claimed that she was "the handsomest vessel of her size ever built on the Penobscot."

John Crosby himself built the handsome vessel which went over without her sails and rigging. As *Telos* lay at her fitting-out wharf, Hennessey and Angley rigged her and the Pearsons bent her sails. Her mainmast was a solid stick of Maine white pine. Because so many white pines had been cut, her fore mast was "made."

While *Annie Lord*'s underside was covered with copper paint, *Telos'* bottom was clothed with thin sheets of copper. The copper kept Telos clean, fast and out of drydocks. Without copper protection she would have had to be docked, scraped and cleaned frequently.

Captain Lawrence Coney owned in and commanded *Telos*. Undoubtedly, he was proud of his vessel. Bangor-born, Coney had followed the sea a dozen years before assuming his first command—that of the schooner *James O'Donahue*. He then became master of the brig *Timothy Field*, the bark *Limerick Lass* and the brig *Rachel Coney*—all Bangor River-built. Coney commanded *Telos* for thirteen years. Unlike the schooners who sailed in the coasting trade, the *Telos* engaged in foreign trade. Coney took her to the Mediterranean, Africa's Gold Coast, the West Indies, and to South America.

The cool and brightly colored fall into which *Telos* was launched represented more than the end of a summer: it was the end of an epoch. The five vessels of the "class of '83" were the last great effort of Bangor River men to build vessels. Thereafter only one or two vessels a year entered the Penobscot until 1905, when Bangor River's last peacetime vessel, *Augusta W. Snow*, went over from the Brewer shore.

The Crosbys built no vessels in their yard after 1883 and the Barbours built but two sailing craft. Only the Stetson yard in Brewer launched sailing vessels after 1883. Only one other sailing vessel was launched from Bangor, *Katherine May*, in 1919. She was an anomaly because she was not called into being by the demands of normal trade. Rather, *Katherine May* was spawned by the war's frantic and unnatural demand for bottoms.

Fires seriously damaged the Barbour and Crosby yards in 1883 and were partially responsible for the decline in Bangor River shipbuilding. The fire in the Crosby yard that ended commercial shipbuilding on the Bangor shore of the Penobscot began in the two largest of the four ice houses of Charles A. Dolan and Sons. The ice houses, next to the Crosby yard, burned on August 7, 1883. The Crosby tool and carpenter shops went up and *Telos* was threatened with fire. *Maud Snare*, in the water only a day, lay at the wharf. Only a change in wind saved her and the *Telos*. Between 8,000 and 10,000 tons of the Dolans' ice melted in the fire.

The Barbour-Warren yard went up on August 22nd. Its oakum, carpenter's, joiner's, and blacksmith's

shops burned. *Annie Lord* sat on the stocks at the time. Only another shift in the wind saved her and let Miss Lord have a memory that would endure for the rest of her life.

The Bangor River vessels encountered many different dangers on their voyages. An account of their endings can tell more of Bangor River shipbuilding, owning and sailing. In October of 1903, *Maud Snare* loaded soft coal in New York for Rockland, Maine. Under Captain Frank Healey she cleared Cape Cod and set a course Downeast. Off Port Clyde, Maine, she encountered a heavy snowstorm and ran ashore on Hart Island. The initial account of her wreck said a second schooner went ashore on the island, explained that *Snare* hit the rocks with all sails set and told that her crew and passenger—the mate's wife—got ashore safely. Later accounts noted that the second schooner was *Post Boy*, built in Bucksport, Maine, during 1875. Like so many of her contemporaries, *Maud Snare* was well-constructed, lived twenty years and met her fate in the grip of a storm.

Edward Stewart sailed from 1883 to 1916, living a long thirty-three years. *Stewart*'s owners sold her to the Stetsons who in turn sold the schooner to Machias, Maine, owners. In 1916, she too loaded coal in New York, at Port Johnson, and sailed for St. John, New Brunswick. She also was caught in snow and gale and anchored off Isleford near the Cranberry Isles. Healey put her close to the island in shoal water where *Edward Stewart* grounded, holed her bottom, and, on the fast-falling tide, settled to tthe rocks where she pounded to pieces. A boat from the Coast Guard station on the islands saved her seven man crew.

A northeaster, snow and sleet figured in the end of *Hattie H. Barbour*. Under Captain E. B. Dickson, of St. John, she loaded coal at Perth Amboy, New Jersey, for St. John. She left Perth Amboy on March 24, 1917, and became windbound at Vineyard Haven until April 8th. She then put to sea and was ravaged by yet another storm. Eight feet of water filled her hold. Her crew took to her boats on April 10th. Four minutes after the crew cast off, she sank. *Barbour*'s crew made a sea anchor for the boat, but was twice swamped. After a merciless ordeal in the cold, Captain Dickson and the *Barbour*'s cook, known only as Smith, died of exposure.

One of the *Barbour*'s competitors, a steam-powered, steel-hulled oil tanker, sighted her boatful of cold, weary men. *Barbour*'s mate, Harry Hendrickson, a Finn from New York, roused his fellows and helped the three exhausted men up the tanker's sea ladder. They collapsed on the tanker's deck, but survived and were taken to a hospital at Halifax. *Hattie H. Barbour* had stayed afloat thirty-four years before meeting her wave-tossed end.

Of *Annie Lord*, the available record is skimpy. It says only that she was abandoned 45 miles off Cuba on May 15, 1920. Like her schooner contemporaries, *Annie Lord* lived a long life—thirty-seven years.

Telos carried an unusual name and met an unusual end. Telos is a Greek word meaning "purpose," "ultimate aim" or "ultimate end." She was the last of her kind and the end of an epoch. And, she was the first of the vessels of 1883 to sink and, she sank almost a year to the day after Captain Coney died.

Coney had "swallowed the anchor," that is to say—retired from the sea in 1897. He died in May 1899. *Telos* sank into the sunlit waters of the Caribbean the following May. The record does not give the exact date or the exact cause of *Telos'* loss off Bonaire Island in the West Indies.

Her loss was not due to clumsy craftsmanship. *Telos* was called "one of the best constructed vessels ever sent from a Maine yard." Educated guesses held that *Telos* was overwhelmed by a tidal wave which was caused by an earthquake on the coast of South America.

Many Bangor families owned in *Telos* when she went down. Their names were Mulvaney, Crosby, Pearson, Varney, Bugbee, Cassidy, Hanson, Sweeney and Kelleher. Their progeny still live on the banks of Bangor River. Said one of her admirers: "The news of the loss of *Telos* made us feel as if we had lost an old friend, and it will be strange now not to find her name in the reports."

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Essex County and the Development of American Marine Biology

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ESSEX County in northeastern Massachusetts served as a cradle for the origin and development of marine biology in the United States during the early nineteenth century.[1] Academic biology of marine life began with a tradition of amateur naturalists pursuing private studies along the seashore, eventually replaced by professional biologists. In time, marine biological laboratories were established for education and research. Practical fishery biology was developed by Dr. Spencer F. Baird, first U.S. Commissioner of Fish and Fisheries, in 1871 at Woods Hole on Cape Cod, Massachusetts. He then established a station at Gloucester, in Essex County, in 1877 to expand his program.[2] Our concern at this time, however, will be focused on the educational and research aspects of basic or academic marine biology. Following is a brief review of the highlights of marine biology as it developed in Essex County over the past 150 years.

I. ESSEX COUNTY (IN GENERAL)

The Essex County Natural History Society, one of the first county scientific organizations in the United States, was organized at Lyceum Hall in Salem in 1833.[3] This was the beginning of formal and systematic study of marine life, among other topics, in Essex County. Dr. Henry Wheatland (1812-1893), the leading local naturalist, soon became the permanent secretary and the leading light for its entire history (1833-1848). A museum was established which included local marine invertebrates (especially mollusks) and fishes. Dr. John S. Appleton of Gloucester, among others, contributed many specimens of local natural history to the museum. A serial publication, the *Journal of the Essex County Natural History Society*, was issued between 1836 and 1852. The most frequently published member was Rev. John Lewis Russell (1808-1873), who was the best local student of marine mollusks and radiates.

In 1873 Edward Hitchcock (1793-1864) supervised the Zoological and Botanical Survey of Massachusetts, which included marine fieldwork in Essex County. Dr. D. Humphreys Storer was in charge of fishes, William B. O. Peabody in charge of birds, and Dr. Augustus A. Gould in charge of invertebrates (chiefly marine mollusks).[4]

In 1848 the Essex County Natural History Society merged with the Essex Historical Society to form the Essex Institute, but activities in natural history continued in a separate department of the institute between 1848 and 1898, and Dr. Wheatland and the Reverend Mr. Russell continued as officers in both the institute and the department, and as leading naturalists.[5] On a

1. R. W. Dexter, "Introduction: Origins of American Marine Biology" (Symposium on History of American Marine Biology and Marine Biology Institutions, arranged by Keith R. Benson), *American Zoologist* XXVIII (1988), 36.

2. P. S. Galtsoff, *The Story of the Bureau of Commercial Fisheries Laboratory, Woods Hole, Massachusetts* (Washington, D.C.: Circular 145, Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service, 1962), 121 pp.; R. W. Dexter, "A Century of Fishery Biology at Cape Ann, Massachusetts," *American Neptune* XLV (1985), 81-85.

3. Henry Wheatland, "On the History of the Essex County Natural History Society, and Some of its Pioneers in the Pursuit of Natural History," *Proceedings of the Essex Institute* II (1856), 24-28; R. W. Dexter, "The Essex County Natural History Society, 1833-1848," *Essex Institute Historical Collections* CXIII (1977), 38-53.

4. D. H. Storer, W. B. O. Peabody, et al., *Reports on the Fishes, Reptiles, and Birds of Massachusetts* (Boston: Dutton and Wentworth, State Printers, 1839), 426 pp.; A. A. Gould and W. G. Binney, *Invertebrata of Massachusetts* (Boston: Wright and Potter, State Printers, 1870), 524 pp.

5. R. S. Rantoul et al., "A Memorial of Henry Wheatland," *Essex Institute Historical Collections* XXX (1893), 127-203; E. B. Willson,

field trip in August of 1849, members of the Essex Institute observed William Stimpson of the Smithsonian Institution and Charles Girard of Boston dredge for marine life along the shores of Manchester. Dr. Wheatland immediately adopted this technique and carried out dredging studies along the coast of Essex County for many years. These naturalists were among the first in the United States to collect subtidal specimens for scientific study. F. W. Putnam, a protégé of Dr. Wheatland, published the first list of fishes for Essex County in 1856, which was the beginning of his career as an ichthyologist. This was soon followed by his catalogue of the birds, including the marine species.[6] A field trip to Rockport in 1862 by members of the institute included the collection of marine life by A. E. Verrill, who later became a professor at Yale University and one of the foremost authorities on the marine invertebrates of New England. On a similar field trip to Gloucester Harbor in 1864, F. W. Putnam, who was then curator of fishes and superintendent of the Essex Institute museum, collected marine specimens for the institute. Three years later the young curators (F. W. Putnam, Alpheus Hyatt, A. S. Packard, E. S. Morse) and the natural history collections were transferred to the new Peabody Academy of Science in Salem, but the Essex Institute continued to support interest in natural history until 1898.

Essex County became the scene of many marine studies in the late nineteenth century. Notable among them were the works of G. Brown Goode and T. H. Bean on fishes, John Robinson on marine plants, W. J. Farlow, A. B. Hervey, and F. S. Collins on marine algae, and Charles W. Townsend on the birds.[7]

"Memoir of John Lewis Russell," ibid., XII (1874), 163-78; R. W. Dexter, "Natural History at the Essex Institute, 1848-1898," ibid., (1980), 21-33.

6. F. W. Putnam, "List of Fishes of Essex County, Massachusetts," *Proceedings of the Essex Institute* I (1856), 1, 144, 148; F. W. Putnam, "Catalogue of the Birds of Essex County, Massachusetts," ibid., I (1856), 201-31; R. W. Dexter, "Historical Aspects of F. W. Putnam's Systematic Studies on Fishes," *Journal of History of Biology* III (1970); 131-35.

7. G. B. Goode and T. H. Bean, "A Catalogue of the Fishes of Essex County, Mass., etc.," *Bulletin of the Essex Institute* II (1879), 1-38; John Robinson, *The Flora of Essex County, Massachusetts* (Salem: Essex Institute Press, 1880), 200 pp.; W. J. Farlow, *The Marine Algae of New England and Adjacent Coast* (Washington, D.C., Report of the U.S. Fish Commission for 1879, Government Printing Office, 1881), 210 pp.; A. B. Hervey, *Sea Mosses* (Boston: S. E. Cassino Press, 1882), 281 pp.; F. S. Collins, "Notes on New England Marine Algae" (a series of articles), *Bulletin of the Torrey Botanical Club*, IX-XI, XVIII, XXIII (1882-1896); C. W. Townsend, *The Birds of Essex County, Massachusetts* (Cambridge: Memoirs Nuttall Ornithological Club, nos. 3 and 5), 352 pp. and 196 pp.

II. Salem

Much of the early work on marine biology in Essex County centered in Salem because the principal institutions and many of the leaders were residents of the maritime community as we have seen. With the founding of the Peabody Academy of Science by George Peabody in Salem in October of 1866, that institution and its museum became a focal point for marine research and public exhibitions.

The origin and early days of the Department of Natural History at the new Peabody Academy of Science have been described in detail by Walter Whitehill.[8] Marine interests of the original curators in addition to Putnam's in fishes, already mentioned, were sponges, coelenterates, and bryozoans (Alpheus Hyatt), mollusks and brachiopods (E. S. Morse), and arthropods (A. S. Packard). In 1878 Packard organized for the academy a summer school of biology which included the Salem Marine Zoological Laboratory on the shores of Salem Harbor. In addition to shoreline collecting, dredging for bottom fauna was carried out by Packard and Caleb Cooke. A brief analytical report on some of their early dredging was published by A. E. Verrill.[9] Marine zoology, especially marine birds, has remained a primary interest of the academy, renamed the Peabody Museum of Salem in 1915, up to the present time.

In 1976 a commercial firm known as Sea Plantations, Inc., was founded in Salem by Bruce M. Poole to provide research and educational institutions with living marine specimens in addition to providing environmental services. In recent years the School for Field Studies was established in nearby Beverly which includes an annual program for "Humpback Whale Ecology" off the shores of Massachusetts, and for the past three summers staff and students have studied the whales on Stellwagen Bank. James L. Elder, Jr., is president of the organization.

8. W. M. Whitehill, *The East India Marine Society and the Peabody Museum of Salem: A Sesquicentennial History* (Portland, Maine: The Anthoensen Press, 1949), 243 pp.

9. R. W. Dexter, "The Summer School of Biology at the Peabody Academy of Science, 1876-1881," *A.I.B.S.* (American Institute of Biological Sciences) *Bulletin* VII (January 1957), 21-23; R. W. Dexter, "Peabody Academy's Caleb Cooke, the Devoted," *The Biologist* LII (1970), 112-19; A. E. Verrill, "Notice of Some Dredgings Made Near Salem by Dr. A. S. Packard, Jr. and C. Cooke in 1873," *6th Annual Report, Peabody Academy of Science for 1873* (1874), pp. 58-60.

III. Lynn and Nahant

The Lynn Natural History Society was organized in 1842. Leaders included Dr. William Prescott, a student of local mollusks; Samuel Tufts, Jr., a collector of local seashells; Benjamin F. Mudge, a lawyer and local naturalist, who did research on the geological and biological formation of salt marshes; and Joseph B. Holder, a young student of birds.[10] Benjamin Mudge became a well-known professional geologist, while Joseph Holder eventually became a surgeon and a famous professional zoologist at the American Museum of Natural History in New York City.

The peninsula of Nahant, adjacent to Lynn, first attracted attention in 1759 when Dr. Edward A. Holyoke gave the first description of the sea anemone *Metridium marginatum* from specimens collected at Nahant.[11] In 1854 Louis Agassiz, founder of the Museum of Comparative Zoology at Harvard University and who later trained the young naturalists at the Peabody Academy of Science, built a room onto his summer cottage at Nahant to serve as a marine biological laboratory.[12] One of his assistants in dredging the adjacent coastal waters was the young Joseph Holder from Lynn. Later, as surgeon-in-chief to government engineers stationed at the Florida Reef, Dr. Holder carried out research on the corals of the reef, encouraged by Agassiz, who had an intense interest in corals and coral reefs, especially in Florida waters.[13] Dr. Holder sent specimens of coral to both Agassiz and the Smithsonian Institution in Washington.

In the early part of the twentieth century, Dr. A. S. Pearse repeated Agassiz's sampling along the rocky shores of Nahant and published an account of the marine fauna.[14] In 1966 Northeastern University established the Marine Science Institute, now known as the Marine Science and Maritime Studies Center, at the tip of Nahant peninsula. Dr. Nathan W. Riser was appointed the first director and served through 1984. He and Dr. M. Patricia Morse directed most of the research until recent years. College classes meet there during the academic year, and special summer courses are offered at the Edwards Laboratory. In 1981 a special symposium on the marine snail *Littorina littorea* was held there.

IV. Cape Ann (Gloucester and Rockport)

Cape Ann has had a long tradition of active naturalists, many of whom specialized in marine biology, and Cape Ann has attracted marine scientists to her shores. In the 1850s Dr. Henry Wheatland of Salem dredged the waters of Gloucester Harbor, as well as Salem Harbor, thus being the first to study the subtidal waters of Cape Ann. When the Cape Ann Scientific and Literary Association was formally organized in 1875, marine studies became an important part of the program and remained so for many years. Especially notable were the researches of Mrs. Maria H. Bray and Mrs. Abby L. Davis on local seaweeds, and their donations of specimens to the association and to the Peabody Academy of Science in Salem. Also notable over the years were the donations of Dr. Spencer F. Baird, U.S. Commissioner of Fish and Fisheries, of marine animals brought in by Gloucester fishing schooners; of Dr. Ralph S. Tarr, native of Cape Ann, who contributed marine invertebrates; and of Dr. Roger Conant, Mrs. George H. Newell, and Mrs. Clara Loring Pew of Gloucester who gave their collections of seashells.[15]

The first extensive research publications on Cape Ann marine zoology from a purely scientific approach were the works of Addison E. Verrill of Yale University,

10. R. W. Dexter, "The Lynn Natural History Society (1842-1855)," *Essex Institute Historical Collections* XCVIII (1962), 175-83; William Prescott, "Catalogue of the Marine, Fluviatile, and Freshwater Shells of Massachusetts" (Lynn: privately printed, 1842), 1 leaf; Samuel Tufts, Jr., "A List of Shells Collected at Swampscott, Lynn, and Vicinity," *Proceedings of the Essex Institute* I (1856), 25-32; B. F. Mudge, "The Salt Marsh Formations of Lynn," ibid., II (1862), 117-19; J. B. Holder, "Catalogue of Birds Noticed in the Vicinity of Lynn, Mass., During the Years 1844-46," *Lynn Natural History Society Publication* no. 1 (1846), 8 pp.

11. E. A. Holyoke, in: E. S. Dodge and C. H. P. Copeland, *Handbook to the Collections of the Peabody Museum of Salem* (Portland Maine: The Anthoensen Press, 1949), pp. 47-48.

12. Edward Lurie, *Louis Agassiz: A Life in Science* (Chicago: University of Chicago Press, 1960), 449 pp.

13. R. W. Dexter, "Historical Aspects of Louis Agassiz's Lectures on Corals and Coral Reefs," *Proceedings of the Symposium on Corals and Coral Reefs*, Marine Biological Association of India (Cochin, S. India), pp. 489-96.

14. A. S. Pearse, "Observations on the fauna of the rock beaches at Nahant, Mass.," *Bulletin of the Wisconsin Natural History Society*, n.s. XI (1913), 8-34; XII (1914), 72-80.

15. R. W. Dexter "Two Centuries of Naturalists on Cape Ann, Massachusetts," *Essex Institute Historical Collections* CXXII (1986), 246-58; R. W. Dexter, "The Scientific Period of the Cape Ann Scientific and Literary Association and its Successors, 1873-1952," ibid., CIX (1973), 165-74.

who was in charge of dredging marine invertebrates for the U.S. Commission of Fish and Fisheries, 1871-1887.[16] The first teaching laboratory for marine biology was Alpheus Hyatt's Annisquam Seaside Laboratory (1880-1886). Prof. J. S. Kingsley, one of the instructors at this summer school, made a collection of local marine life for the Peabody Academy of Science in Salem and served as a curator for the Cape Ann Scientific and Literary Association. Attached to Hyatt's teaching laboratory was his private schooner-yacht, the *Arethusa,* used for dredging specimens in Ipswich Bay for student use and for his expeditions to Anticosti Island in the Gulf of St. Lawrence.[17] Hyatt's son-in-law, Dr. Alfred G. Mayer (later, spelled *Mayor*) published a book on *Sea-Shore Life* based partly on his marine studies at Annisquam.[18]

My own marine work, beginning in 1933, has continued for over fifty years.[19] Subsequent researches have included Dr. Arthur H. Clarke, Jr., on marine mollusks, and Dr. William H. Drury and his associates on marine birds.[20]

16. A. E. Verrill, "Notice of Recent Additions to the Marine Invertebrates of the New England Coast of America," *Proceedings of the U.S. National Museum* II (1879), 165-205; A. E. Verrill, "List of Collections Made by the Fishing Vessels of Gloucester and Other New England Seaports for the U.S. Fish Commission from 1877-1880," *Report of the U.S. Commission of Fish and Fisheries for 1879* VII (1882), pt. 7, 787-835.

17. R. W. Dexter, "The Annisquam Seaside Laboratory of Alpheus Hyatt, Predecessor of the Marine Biological Laboratory at Woods Hole, 1880-1886," in: Mary Sears and Daniel Merriman (eds.), *Oceanography: The Past* (New York: Springer-Verlag, 1980), pp. 94-100; Jeanne B. Burbank and R. W. Dexter, eds., "Excerpts from Alpheus Hyatt's Log of the *Arethusa*," *Essex Institute Historical Collections* XC (1954), 229-60; Jane Maienschein, "Agassiz, Hyatt, Whitman, and the Birth of the Marine Biological Laboratory," *Biology Bulletin* (symposium supplement), CLXVIII (1985), 26-34.

18. A. G. Mayer, *Sea-Shore Life* (New York: New York Zoological Society, 1905), 181 pp.

19. R. W. Dexter, "The Marine Communities of a Tidal Inlet at Cape Ann, Massachusetts—a Study in Bio-Ecology," *Ecological Monograph* XVII (1947), 261-94; R. W. Dexter, "Distribution of the Marine Mollusks at Cape Ann, Massachusetts," in *Proceedings of the Symposium on Mollusca* (Cochin, S. India: Marine Biological Association of India, 1969), I, 214-22; R. W. Dexter, "Recoveries of Herring Gulls Banded at Cape Ann, Massachusetts," *North American Bird Bander* III (1978), 52-54; R. W. Dexter, "Plant Succession on a Filled Salt-marsh at Cape Ann, Massachusetts, 1958-1979," in: R. C. Romans, ed., *Geobotany II* (New York: Plenum Press, 1981), 235-48; R. W. Dexter, "Changes in the Standing Crop of Eelgrass (*Zostera marina*) at Cape Ann, Massachusetts, Since the Epidemic of 1932," *Rhodora* LXXXVII (1985), 357-66.

20. A. H. Clarke, Jr., "Shell Bearing Marine Mollusks of Cape Ann, Massachusetts," *Nautilus* LXVII (1954), 112-20; W. H. Drury, "Population Changes in New England Seabirds," *Bird Banding* XLIV (1973), 267-313, and XLV (1974), 1-15.

In 1965-1966 Boston University made efforts to establish a marine station at Lane's Cove in Lanesville. Because of objections from the residents in fear of losing waterfront rights, the proposal was abandoned, and in 1969 the university set up a program at the Marine Biological Laboratory in Woods Hole instead. However, in 1970, the University of Massachusetts established a marine station at Hodgkins Cove in Bay View, a suburb of Gloucester. Dr. Charles S. Yentsch, appointed first director, carried out basic research on the plankton of Ipswich Bay, while Dr. Clarice Yentsch and Dr. Christopher Martin, with their associates, studied the Red Tide phenomenon of Ipswich Bay.[21] A motor launch used for research was donated by the Cape Ann Society for Marine Science, and was operated by William Murphy of Gloucester who had formerly been captain of the *Albatross,* a major vessel of the National Marine Fisheries Service. Other research projects were soon initiated, but after four years the ecological field research program was phased out and soon emphasis was placed on marine food chemistry under new direction. In the summer of 1971, Dr. Clarice Yentsch inaugurated a summer science enrichment program for the Cape Ann Public Schools, which was expanded and directed by Sarah Fraser Robbins with the cooperation of Dr. Yentsch in 1974-1975. Schoolchildren were taken on field trips to the seashore to study marine life and the marine environment. Mrs. Star Topinka, a science teacher in the Rockport Public Schools, served as coordinator for the program. Mrs. Robbins and Dr. Yentsch also published a field guidebook to the marine life of Cape Ann and vicinity for the general public as well as for their summer classes.[22]

In 1975 the Ocean Research and Education Society was founded by George Nichols on the shoreline of Gloucester Harbor, which includes the Cape Ann Marine Studies Center. Research over ten years was confined largely to oceanic marine mammals, but the edu-

21. C. S. Yentsch, "The Harvest-Primary Production," in: P. J. Herring and M. R. Clarke, eds., *Deep Oceans* (London: Arthur Barker, Ltd., 1971), pp. 150-63; C. S. Yentsch, Ian Morris, and C. M. Yentsch, "Relationship Between Light Carbon Dioxide Fixation and Dark Carbon Dioxide Fixation by Marine Algae," *Limnology and Oceanography* XVI (1971), 854-58.

22. S. F. Robbins and C. M. Yentsch, *The Sea is All About Us. A Guidebook to the Marine Environments of Cape Ann and other Northern New England Waters* (Salem: Peabody Museum of Salem, 1973), 162 pp.

cational program is broad-based including elementary and high school pupils as well as college students. John Wigglesworth serves as executive director.

In 1979 the Massachusetts Audubon Society organized a new project, "Resources for Cape Ann." A portion of the program was given to marine resources with Dr. Thomas Hruby as senior scientist. While the emphasis is on economic problems of natural resources, some phases involve basic environmental science.[23] In 1986 the organization opened the Norman's Woe Marine Studies Center at Magnolia on the shores of Gloucester Harbor, and shortly thereafter expanded the scope of operation and retitled the project "Resources for the North Shore."

V. Ipswich

Dr. Charles W. Townsend, in addition to his monographs on the birds of Essex County mentioned earlier, made a thorough study of marine life along the shores of Ipswich resulting in two popular books of natural history.[24] In 1978 the Quebec-Labrador Foundation established the Atlantic Center for the Environment, with headquarters located in Ipswich in 1982. While the major parts of the research and educational programs are centered in northern New England and eastern Canada, the center building in Ipswich includes permanent and temporary exhibits on natural history and the conservation of natural resources. Dr. Kathleen Blanchard is director of research and education, and carries out extensive research on marine birds.

23. Thomas Hruby, "The Shellfish Resource in a Polluted Tidal Inlet," *Environmental Conservation* VIII (1981), 127-30; Thomas Hruby, "The Effect of Ditching for Mosquito Control on Salt Marsh Use by Birds in Rowley, Massachusetts," *Journal of Field Ornithology* XXXV (1984), 160-80.

24. C. W. Townsend, *Sand Dunes and Salt Marshes* (Boston: Marshall Jones Co., 1913), 311 pp.; C. W. Townsend, *Beach Grass* (Boston: Marshall Jones Co., 1923), 319 pp.

Dr. Ralph W. Dexter published his first paper for the American Neptune *in the spring issue of 1985 which was devoted to 'A Century of Fishery Biology at Cape Ann, Massachusetts.' He was born and raised in Gloucester, and studied the marine life of Cape Ann for his doctoral dissertation (1933-1937), and has continued research on Cape Ann marine ecology to the present time. He is now Professor Emeritus of Biological Sciences at Kent State University, Kent, Ohio.*

An Inquiry into H. I. Chapelle's Research in Naval History

W. M. P. Dunne

HOWARD Irving Chapelle, who is remembered as both a naval architect and a maritime historian, passed away in 1975. He bequeathed to posterity several errors of practice and theory in naval history. During his lifetime and since, historians have frequently cited his works and have rarely questioned his conclusions and statements of fact. Whether this acceptance resulted from a reluctance to confront an accepted authority, an insufficiency of knowledge to mount an argument against his conclusions, or simple lack of interest in pursuing a peripheral subject, is untraceable; but the consequence has been the preservation of Chapelle's research-related errors. This paper[1] does not address the total body of his writings but does focus on four cases where Chapelle's research practices and theories have led to, or fueled, controversies among students and scholars of naval history.

Chapelle's only book devoted entirely to United States naval history was *The History of the American Sailing Navy*;[2] although he co-authored *The* Constellation *Question*,[3] which dealt with an artifactual issue surrounding that venerable vessel. He also researched and wrote about other naval vessels as examples of ship types discussed in his *The Baltimore Clipper*[4] and *The History of American Sailing Ships*.[5] Chapelle wrote well and with authority in a field where no scholars seemed to be working. He was filling a void in the study of American maritime technology and was quite equal to the task. *American Sailing Ships* was published in 1935 and both *American Sailing Craft*[6] and *Yacht Designing and Planning*[7] came out in 1936. For two of those Depression-era years he was Regional Director of New England for the Works Progress Administration's Historic American Merchant Marine Survey. In 1941 he published *Boatbuilding, A Complete Handbook of Wooden Boat Construction*.[8]

His writings found a willing audience and enjoyed well-deserved recognition among historians and scholars generally. He worked closely with the project to recover and preserve the Continental gundalow *Philadelphia*,[9] raised from the depths of Lake Champlain in 1935 and now prominently exhibited in the National Museum of American History,* the Smithsonian Institution.

Chapelle became a devotee of Massachusetts' Peabody Museum of Salem, where he was a founder of the Peabody Marine Associates in February 1939, and an editor of *The American Neptune* at its inception in 1940. The "Associates" were a group of maritime historians, museum curators and influential laymen with nautical interests. It was an era when an autodidact could excel and, in his fields, Chapelle was a brilliant product of this variety of learning:

> In Howard Chapelle's era, the 1920s through the 1960s, maritime scholarship belonged to the nonprofessionals—not that the work being done was necessarily *un*professional, but that the people who were doing it were not professionally trained historians. Genuine professional maritime historians were few and far between, and, in their absence, the field, such as it was, was dominated by a few energetic and knowledgeable amateurs. Chapelle was a perfect example of the type. He didn't have a bachelor's degree in history (or in anything, for that matter), never mind a master's or a doctorate; and yet he wrote books and learned papers, served on committees and did original research.[10]

His scholarly achievements are impressive. An article[11] he wrote in 1948 concerning clipper ships proved to be of major importance to that area of maritime history and, significantly, was mentioned in his obituary in *The Mariner's Mirror*. *The History of the American Sailing Navy* won a 1949 Guggenheim award, and he went to England in 1950 on the fellowship to study colonial naval architecture and the Admiralty draught collection at the National Maritime Museum.

Chapelle was appointed Curator of Transportation

* Correct museum title: National Museum of American History.

for the Smithsonian Institution in 1957 and enjoyed a successful term there until his retirement and appointment as Historian Emeritus in 1971. His first book for the Smithsonian Institution Press, *The National Watercraft Collection,*[12] appeared in 1960. During 1964 he organized and edited notes and text prepared by Edwin Tappan Adney, drafted plans of canoes measured by Adney, and added his own original work on Arctic skin boats, all of which emerged as the book entitled *The Bark Canoes and Skin Boats of North America.*[13] His highly regarded *The Search for Speed Under Sail* was published in 1967.[14] Two years after retiring, he was employed as a consultant to the Maritime Museum in Singapore and his last book, *The American Fishing Schooners,*[15] was released. Death came upon him at Lewes, Delaware, on June 30, 1975, where, at his own request, his ashes were spread over the adjacent seas.[16] A prolific writer, in addition to his twelve books, he published articles in *The American Neptune, The Mariner's Mirror, Yachting* and other journals, and was a regular book reviewer for the *Proceedings of the U.S. Naval Institute.*

But Chapelle was a flawed scholar. As a result, his books and articles on naval history are seeded with errors that have been perpetuated through frequent citation by historians who have accepted the myth of Chapelle's infallibility in all things maritime. It is time to examine some of these errors and how they came about. John Lyman, of Washington's National Science Foundation, in his review of *Sailing Navy* published in *The American Neptune* stated:

> Chapelle writes fluently and briskly, with a minimum of direct quotation from older texts and an entire lack of footnotes or references to sources. This style makes it difficult to disagree with his opinions and interpretations. . . . One gathers the impression that the naval constructors, were they unhampered by bureaucratic civilians or by line officers seeking the privileges of their ranks, would never have designed an unsuitable vessel. Since the author himself is a practicing naval architect he is well qualified to judge, *but at the same time one may wonder if he is entirely free of professional bias.*[17]

Lyman was waving a red flag but it seems to have been studiously ignored. He was pointing to Chapelle's breaking of a basic tenet of scholarly publishing: Reference primary sources. Such references to sources are especially important in the type of pioneering investigation that Chapelle was doing—studying original documents, analyzing raw data, handling actual artifacts, and walking the terrain, so to speak. From these activities Chapelle drew his conclusions and published his findings. Lacking references and citations, however, those following behind and wishing to build on his work were without a road map that would allow them to trace his steps, test his interpretations, and either confirm or deny his theories and statements of fact. Lacking the benefit of academic training on historiographic practices, Chapelle may not have appreciated their importance and, further, may not have had the opportunity to develop the discipline and objectivity necessary to implement those practices.

In a more recent biographical article, Peter Spectre noted Chapelle's research methods and his alteration of original drafts:

> Chapelle's reputation notwithstanding, *there were flaws in his research and inaccuracies in his published findings and plans.* Perhaps because he lacked a scholar's education or because he was in a hurry—or perhaps both—*he sometimes didn't get the facts right.* And sometimes, in the absence of the facts themselves, he did a little interpretation, guesswork, intuitive supposition. Sometimes, probably because he was a naval architect himself, he would slightly alter the design of a historical vessel when he drew her plans for publication. It may be that he wanted the lines to conform to what he thought they should be rather than what they actually were.[18]

Chapelle's literary efforts helped establish maritime history and naval architectural history as viable subdisciplines of historical study; paradoxically, his reputation for infallibility having gone unchallenged has allowed the continuance of his errors in subsequent writings based on his works.

Section 1. *Chapelle's Practice of Altering Primary Source Drafts*

Chapelle himself made the point that "in matters of ship design, it seems to me that the plans are the primary evidence,"[19] adding in his introduction to *Sailing Navy,*

> American naval history is far more than a running account of naval battles or a panegyric of naval officers. The qualities and characteristics of the ships engaged in noted actions are obviously an important consideration in any naval history.[20]

The hypothesis of the second sentence is a sound premise for faithful reproduction of extant plans without revision, yet he routinely redrafted and altered primary source plans. His books generally provide an assortment of redrawn design and construction drafts, and those in *Sailing Navy* were largely taken from plans at the U.S. National Archives and the British National Maritime Museum. These institutions employ

large technical staffs and have sophisticated facilities, but Chapelle did not publish reproductions of the original documents.

Lyman's review of *Sailing Navy* draws attention to specific modifications Chapelle made to the Admiralty plans of captured Continental Navy frigates:

> These have all been redrawn and refaired by the author, and much useful detail had been added. . . . In the present volume the dolphin strikers shown on the sail plans of *Randolph, Raleigh,* and *Confederacy* are doubtful reconstructions; the spar is not given in their spar lists, and the evidence for its use before 1790, or simultaneously with two spritsails is meager. . . . Although these redrawn plans are in most respects superior to the unevaluated originals, certain details of interest have been lost. *Thus the shape and position of cant frames, which were indicated in many of the original drafts, are omitted, as are such clues to design practice as the projection of diagonals on the vertical* profile.[21]

The last sentence in the quotation is pertinent to the Humphreys/Fox question (see Section 4 below) as the removal of the cant frames from the drafts deletes a major design innovation Humphreys employed to strengthen his unusually large frigates. This writer personally matched some of the plans in *Sailing Navy* against the originals at the N.M.M. including the U.S. and Continental navy frigates *Chesapeake,*[22] *Confederacy,*[23] *Hancock,*[24] *President,*[25] *Raleigh,*[26] and *Virginia.*[27] The versions published in *Sailing Navy* were found to have been altered in varying degrees. The N.M.M. draughts of Continental frigates uniformly contain an outboard sheer plan with an overlaid inboard-works profile, a half-breadth line plan, and a fore-and-aft body plan. Chapelle's drawings are equally uniform. In each reproduction he has separated and redrafted the inboard-works profile, leaving out the breast-hook locations, and cut the hull profile off at the waterline, thereby losing the lower inboard details. On the body plans he shows bow detail that does not exist on the British originals. Had he and his publisher reproduced the readily available original drafts, they would have provided a valuable service to later researchers by allowing easy access to these plans in American library stacks.

Section 2. *Chapelle's "Rebuilding" Theory and the* Constellation *Question*

During his career Chapelle clearly reached the conclusion that most ships rebuilt by order of the Navy Department between the War of 1812 and the Civil War were done so with "Repair" rather than "Construction" funds. If his postulation had ended there it would have been impregnable; however, he further claimed that not only were these ships rebuilt under false budgetary premises but in practically every case the old ship was secretly destroyed and a completely new ship constructed. His initial allegation reads:

> The sloop *Erie,* built in 1813, had been surveyed in 1820 and was found to be rotten. It was decided to repair her and, in the process, to lengthen her to about 122′. Doughty prepared a new drawing for the ship, making her 121′11″ between perpendiculars, 32′6″ moulded beam, and 14′9″ depth in hold. While it appears that some of the original ship was saved in the rebuilding, nevertheless the *Erie* was practically a new ship when again launched. *The practice of "rebuilding" ships on a new design may be said to have begun with this incident; in this case the redesigning was partial, but it was an easy step to the use of a completely new design, producing an entirely different model and even class of ship in the guise of "rebuilding."* The *Erie* as rebuilt is shown in Figure 82. The work was done at New York Navy Yard, and she was launched late in 1821. She ran for twenty years, first as a cruiser and toward the last as a storeship. She was broken up in Boston in 1841. A storeship of the same name, but smaller, was built to replace her.[28]

All of the above information concerning the *Erie,* except its lengthening, is erroneous. The original *Erie* was rebuilt and lengthened four feet between 1820 and 1823 at New York Navy Yard and served as an armed ship-sloop until 1841, when it was again rebuilt and converted to a store-ship at Boston Navy Yard, but with the same hull dimensions as in 1823.[29] Typically, during the initial rebuild, *Erie* was stripped down to its live oak structural members, a keel scarph released, presumably at the dead flat,[30] and rebuilt with a four-foot keel extension. Existing timbers (live oak), planks (long-leaf pine) and wales (white oak) were reused, with substitution of new planking and wales where necessary to replace rotted wood.[31] Contrary to Chapelle's statement, *Erie was not* broken up in 1841 and a new, smaller vessel *was not* built to replace her. It was the *same Erie,* retaining the *same* 1823 dimensions that was converted to a store-ship, a service she had never before performed.

His hypothesis concerning the *John Adams* is an expansion of the above "rebuilding" theory:

> In 1829 there began an intensive period of "rebuilding." The state of the old ships has been noted previously, and the diversion of funds from the maintenance of all of these ships to rebuild the *Erie* and *Peacock* had hastened the deterioration of the worst ships into an unserviceable state. These were the old *John Adams, Macedonian,* and *Congress.* Orders were now issued for the rebuilding of the *John Adams.*

> Survey showed the ship to be so badly decayed that it was no longer worth while to attempt to cobble her up into usable condition as a frigate. Humphreys [Naval Constructor Samuel Humphreys] reported that the funds available made it wholly impossible to "rebuild" her, as was done in the *Peacock*, as a vessel of her original class. The Board, faced with this dilemma, now decided she should be "rebuilt" as a sloop. Humphreys prepared a new design based on his estimate of probable cost compared to the funds available. The result was a ship sloop only about 100' between perpendiculars; the Board would have none of it. *After more study and thought, and a few glances at the budget, it was decided that the frigate* John Adams *should be "rebuilt" or "cut down" into a 24-gun corvette exactly like* [Samuel] *Humphreys'* Vandalia. This was ordered done. The old ship was broken up in the Norfolk Navy Yard, and the new sloop of the same name was laid down there and launched in the fall of 1830. Again, there is no evidence that any part of the old ship was used in the new one, though it may have been done. *At any rate, "rebuilding" had now reached the state where a ship was not only "rebuilt" on a new design or to new dimensions, but even in a different class!* That such administrative fiction as carrying this sloop on the register as a "rebuilt" frigate could exist is sufficient evidence of the attention Congress was then giving to naval affairs, and also of the bureaucratic evasion of budget requirements that has not been entirely unknown in recent times.[32]

Antithetical to the above excerpt, which addresses the period 1829-1830, the *John Adams* hadn't been a frigate since 1809; when it had been converted and recommissioned as a corvette.[33] In 1812 it had an armed quarterdeck added, thereby becoming a "jack-ass" frigate. This deck was disarmed and cut-down in 1814 when the vessel was restored to the corvette configuration that it retained throughout the rest of its career. *John Adams* was neither redesigned nor made into a copy of *Vandalia,* as Chapelle suggests. It retained its original 1799 dimensions and hull lines[34] as well as its 1809 corvette silhouette until its demise. Chapelle's "rebuilding" theory in both excerpts is inaccurate and his charge of "administrative fiction" is purely specious.

There is index confusion apropos Chapelle's hypothetical 1829 *John Adams* in *Sailing Navy*: If the reader attempts to locate the dimensions of the ship that Chapelle identifies as *John Adams (2nd),* he is directed to *Boston.* There, *Boston (4th),* he is then referred to *Vincennes* for the dimensions; but upon reaching *Vincennes,* he is redirected to *Boston (4th)*! Chapelle's *John Adams (2nd)* dimensions cannot be found in what should be their normal index position, nor can they be found in the text, or elsewhere. Just as there was no new *John Adams* in 1829, there were no new dimensions to be indexed in 1949. The original *John Adams,* built of live oak frames in 1799, survived until 1867.[35]

From no cause discernable in the 1980s, in 1945 Chapelle began a series of allegations[36] against the 150-year-old[37] ship *Constellation,* which had had several rebuilds during its exceptionally long lifetime. The last one was a conversion in 1853-1854 from frigate to corvette, similar to those of the *John Adams* (1809), the *Adams* (1813) and the ship-of-the-line *Independence,* which was razeed in 1836. *Constellation,* however, unlike the other vessels included in his rebuilt category, survives today, is available for structural examination and can be supported by an abundance of documentation.

It is not the contention of this paper that the ship afloat in Baltimore's Inner Harbor is the 1797 "frigate," as she is represented there. It is contended herein, however, that the frigate was the basis for the corvette; not a newly-constructed hull, and thus the artifact has justifiable claims to 1797 origination. The ship at Baltimore is a much-modified version of the original hull and would best be characterized today as representing its 1850's first-class corvette configuration. If the effect of these alterations is not recognized locally, this valuable relic will continue to be a travesty.

The alternative is to restore the vessel to true 1797 configuration. The pattern for warship restoration has been set internationally by H.M Ship *Victory* at the Portsmouth Royal Navy Dockyard. Launched on 7 May 1765, first commissioned on 12 March 1778 (*Victory* had two hull repairs, 1771 and 1775, before entering active service),[38] most famous as Nelson's flagship in 1805, it had many changes during its lifetime, both before and after Trafalgar. The decision was taken by *Victory*'s warders (a trust set up by the Royal Navy) to return the ship to 1805 form and present it to the public as Nelson's flagship, a massive project requiring major restructuring of its bow and stern. The stern reconstruction was started 1975-1976 and is projected to finish in 2000, while work on the bow was begun in 1984-1985 and is projected to finish in 2005. These projects plus the ship's operating budget cost approximately $2,820,000 *per annum*! Until the Baltimore people can afford the same process, they must acknowledge their ship for what it is, an 1854 first-class corvette modified from an enlarged 1797 frigate hull.

Chapelle's primary imputation was that the present *Constellation* is a new ship built in 1853-1854 and has no claim to 1797 origin.

The last sailing man-of-war designed and built for the United States Navy was the first-class corvette *Constellation,* built at Norfolk Navy Yard in 1853-54. Her design, prepared at Norfolk, called for a large and sharp spar-decked corvette, 176′0″ between perpendiculars, 41′0″ moulded beam, and 21′0″ depth of hold to the gun deck. This ship, however, was administratively "rebuilt," just as the *Macedonian, Cyane,* and *John Adams* had been earlier. The old *Constellation,* authorized in 1794, had been repaired again and again; in the years between 1805 and 1812 she had a "great repair" that increased her beam by 14″. She had long been in very poor condition and was broken up in 1852 at Norfolk.[39] A new design had been prepared,[40] and this was laid down in 1853 as the "rebuilt" *Constellation.* The new vessel was a corvette, not a frigate, and she differed in model and dimensions from the original frigate of that name. The differences in the two ships may readily be seen by comparing the design of the corvette (Figure 142) [as redrafted by Chapelle] with the design of the original frigate, Plan 8 [as redrafted by Chapelle].

Unfortunately some of the semi-official [and official[41]] lists of American naval ships have listed this ship as though she had, in fact, been preserved and altered. This has led to many believing the corvette, which is still in existence (1949), to be the oldest ship in the navy, and to have had a continuous identity since 1797.[42]

As with so many of the arguments he presents based on his redrawn plans, the statement above does not stand careful analysis. The contention is predicated on a comparison of *his version* of the corvette's design draft compared to *his version* of the Humphreys' 36-gun frigate design draft. Even the original drawings, however, would not be admissible as evidence as they do not represent the ship "as built." Chapelle's reinterpretations merely cloud the issue further. It is known that although *Constellation*'s builder, David Stodder, followed Humphreys' exact dimensions, he altered her model. Secondly, her beam, whether moulded or extreme, remains much the same as when its tumblehome was reduced at Washington Navy Yard in 1812, but its length was altered by the keel extension and addition of the rounded "steamboat stern" of 1853-1854.

Additionally, and contradictory to the last sentence of the above quotation, *Constellation* has had "continuous identity" since 1797. At Norfolk Navy Yard on 3 November 1852 the ship was hauled out of the stream for the first time in years: "Frigate *Constellation* was transported from her moorings in the river to under the Small Shears & secured."[43] Later she was dry-docked to have her ballast removed. Then on 23 February 1853:

Employed 8 Overseers & 153 white Laborers with all the mechanics from the different Depts. hauling up Frigate *Constellation*. . . . at 1 PM Frigate *Constellation* was hauled up in her ways at North Slip—All the men employed on her by order of Capt. S.L. Breese left the Yard for the Ballance [*sic*] of the day.[44]

The extent of the 1853 renovations was described in Norfolk's *Southern Argus*:

The United States ship *Constellation* has been dismantled to her berth deck and stripped down to her lower frames which are standing upward, attached to her planks and keel in the ship-house at the navy-yard.

Work will begin tomorrow on her interior planks, while workmen are preparing some new frames to give the ship a steam boat stern. It is believed by the yard constructors that the new ship will be equal in size and guns to any fighting ship on the sea.[45]

Constellation was lengthened by adding twelve feet to its keel. Additionally, its stern was altered; its upper works were removed, and then, slightly larger than a Humphreys' 44, it returned to duty as a first-class sloop-of-war to serve on and off for another hundred years. When it was decommissioned for the final time, the navy returned the ship to Baltimore where it was officially welcomed on its 160th birthday, September 7, 1955. A restoration program was initiated under the direction of Leon D. Polland, naval architect. Writing in 1968, Polland referred to Chapelle's attacks:

Over the past ten years, Mr. Chapelle has questioned the authenticity of the Frigate *Constellation* now in Baltimore Harbor as well as the integrity of those most intimately connected with the restoration.

If the reader's hopes include a similar barrage of undignified language in rebuttal to Mr. Chapelle, the following pages will contain many disappointments. When the reader finally closes the cover here, it is the writer's hope that he will also have observed some of the gentlemanly rules of conduct for it is only necessary to present the facts to prove the point, and this we will proceed to do.[46]

Polland was conservative; by that time, Chapelle had been assaulting *Constellation* for twenty-three years.[47] His outpourings on the subject finally aroused the ire of the Navy Department.

In 1957, Rear Admiral Ernest M. Eller, Director of Naval History in the office of the Chief of Naval Operations [and a respected historian and author], wrote that there "is not now and has not been any change in the Navy's pride in the *Constellation* as one of our most historic ships continuously on the Navy rolls since she first went to sea in 1798." Admiral Eller stated that nowhere in the records of the Navy Department was there any indication that the original *Constellation* was "broken up, stranded, scrapped or otherwise disposed of." She, in fact, retains about 30% of her original materials [more than her controversy-free sister *Constitution*].[48]

The ship was and is a cherished national artifact with a high profile of public interest and had, and still has many willing defenders, among them Franklin D. Roosevelt and Evan Randolph, a descendent of Commodore Thomas Truxtun. In a 1979 *American Neptune* article Randolph quoted Acting Secretary of the Navy Roosevelt, who wrote in 1913:

> I have before me all data on this repair at Gosport [Norfolk Navy Yard] between the years 1853 and 1855. . . . [T]he records of repair dated 1853 through 1855 state that the *Constellation* has the original keel, frames from six foot upward of the keel, ballast, and stem. It does state that the old vessel was taken down to bare structure and rebuilt as a sloop of 24 guns. It was pointed out to me that it was found that a false keel should have been made as her old keel was badly warped or hogged. I found that in July and August 1853 the false keel was attached to her old keel and that it was the intention of the Commandant at Gosport to save and preserve as much of the old ship as was possible.
>
> I am sending you the drawings that were made of the ship in 1852 and your bureau will be able to check them with the new design plan.
>
> I feel that the *Constellation* is as original as any ship afloat, even though she has had changes, ships change as do men and *Constellation* is no exception.[49]

Randolph's investigation of *Constellation*'s construction was thoroughgoing and complete. He delved into the Humphreys and Fox Papers and the National Archives Records Groups 19, 45, 71 and 74, to trace the development of the ship from 1797 through 1854. Randolph's and Polland's researches are verifiable and coupled with the artifact itself, leave no doubt that the ship is the 1797 hull as modified in 1853-1854: few warships last for 10 years of service in pristine originality—none for 190 years.

As Randolph points out, the keystone to Chapelle's arguments lay in the National Archives plans 104-13-4 A & B, dated Norfolk February 1853.[50] Yet these drafts only represent the ship as repaired at Norfolk in 1829, a fact that a man of Chapelle's expertise must have recognized. The cited plans simply cannot pertain to the 1853 reconstruction. The ship was not stripped to her frames, a prcedure necessary for admeasuring the transverse sections of the ship, until mid-July 1853, well after the date on which Chapelle's argument depends. It is likely that the 1829 drafts were sent to Norfolk as blocking plans for the first dry-docking in *Constellation*'s career.

Another puzzling aspect of Chapelle's naval architectural writings is his lack of discussion concerning the structural properties of the various types of timbers, particularly live oak, as applied to the wooden sailing navy, a most important factor in *Constellation*'s longevity. Eighteenth and nineteenth-century U.S. shipbuilders had a deep knowledge of timber properties. Ideally, they chose pine to form keels and keelsons; live oak for lower futtocks; live oak or cedar for top timbers; yellow pine for beams and carlings; longleaf pine for planks, ceiling and decks; live oak again for harpings; white oak for bends and wales; and live oak, white oak or locust for knees. Had Chapelle possessed a working familiarity with the characteristics of live oak ship timbers,[51] his treatise might have been reconsidered. It is unlikely that the navy destroyed frames constructed from this durable shipbuilding material for, with age, live oak acquires the qualities of wrought iron without its propensity for corrosion.

It is impossible to ascertain in retrospect why Chapelle pursued his attacks on *Constellation* so tenaciously. Had his argument in 1955 solely challenged Baltimore's identification of its ship as the 1797 "frigate," instead of the source date of the artifact, it would have been unanswerable. Even if he refused to accept the body of historic documentation pertaining to the origin of the hull, why did he not take the alternative course and examine the artifact itself? For the last twenty years of his life the ship was not far from his home, but he never went on board to prove or disprove his theory. His casuistry is evident to any trained naval architect who examines the skeleton of the ship. A wooden warship's frame is composed of pieces called futtocks, usually four, scarphed together. In the present day *Constellation* there is a clear distinction between the lower futtocks, which were shaped by an adze in 1795-1796 and the upper futtocks, which were sawn during 1853-1854. The only interruption in the run of adzed lower futtocks occurs near the center of the ship where the original dead-flat area was opened for the keel extension.

Given the softening of Chapelle's convictions concerning naval history, as well as other topics in his later life, a visit to the ship might have altered his contentious *Constellation* theory. Time, however, was his personal devil and may explain the lack of research foundation underlying the structure of his published hypotheses. Chapelle's voluminous contribution to maritime history is unquestioned, but many of his errors can be attributed to his habitual haste. He once described his normal work day at the Smithsonian Institution and decried the lack of time for research:

> I think it is expecting too much to attempt research to be

carried on during museum hours. It is here, anyway, for from 9 to 5 we have visitors, correspondence, telephone calls, conferences and routine duties. In my case I leave my quarters at 5:00 a.m., arrive at office at 6:00 a.m. and work on [drafting] board or research from 6 to 9+, I can leave at 4 p.m. or work late.[52]

Peter Spectre lends additional insight to Chapelle's investigative procedures:

Chapelle's methodology was pretty straightforward: document as much of it as you could, as quickly as you could, before you dropped.[53]

Section 3. *Chapelle's* Cyane *Confusion Relative to his "Overgunning" Theory*

Chapelle uses the following passage from *Sailing Navy* to explicate his theory on the "overgunning" of sailing ships of war. He initially discusses the two ship-sloops built at Baltimore in 1799 (*Maryland* and *Patapsco*), but then turns to the British ship-sloop *Cyane* to enlarge the issue. Research parallel to Chapelle's has provided the sources on which he based his hypothesis and bracketed reference marks have been inserted into the quotation to cite them:

When the *Maryland* was criticized . . . Buchanan wrote the Secretary of State,[54] repeating the earlier criticisms of the spar deck and *adding the more just comment that the ship was overgunned for her size*. Comparing the ship in the plan[55] and the known dimensions and armament of the *Maryland* and *Patapsco* with a British sloop of the period *illustrates the mistake made in arming the American vessels*. The British sloops of war built on a similar plan between 1795 and 1798, named *Termagant*, *Bittern*, *Cyane*,[56] *Plover*, and *Brazen*, will serve to illustrate the point. The *Cyane* later fell into American hands and was taken into the United States Navy.[57]

The text reveals Chapelle's research oversight. The *Cyane* captured by the Americans in 1815 was not one of the 1795-1798 British sloops-of-war, but a 6th-rate built in 1806.[58] Herein lie the parameters of his discussion on overgunning. He had unwittingly based it on different ships, placing the larger ship's armament into the smaller ship's hull. There were two *Cyanes*. The first was built in 1796 and captured by the French in 1805.[59] Chapelle believed this to have been the Americans' 1815 capture;[60] however, that *Cyane* was a considerably larger ship constructed to replace the earlier loss.

Chapelle's minimal research methods were at fault. His *Cyane* search was described by David Lyon of the National Maritime Museum's Draughts Room, who had been resident during Chapelle's visit. The ensuing description is a *non-verbatim* account of Lyon's exegesis.[61] While researching there, Chapelle requested information on the *Plover*-class of ship-sloops, which included the 1796 *Cyane*, presumably on the assumption that there had been only one Royal Navy ship with this name. According to Lyon, Chapelle failed to investigate further into whether or not there had been others, perhaps because he was enamored with the similarity between the 1796 British ship-sloop class and the 1798 American one. *Sailing Navy* continues:

The British ships [1795-1798] were 110′0″ between perpendiculars, 29′0″ moulded beam, and 13′8″ in the hold, using the American system of measurement.[62] They originally carried 16 6-pdrs. on the gun deck, 6 12-pdr. carronades on the quarterdeck, and 2 12-pdr. carronades on the forecastle—24 guns all told against the Americans' 26 guns of heavier weight.[63] Though the British sloops had sharper bows than the ship in Figure 22, the greater area of the British ships' midsection and her slightly greater length gave her more displacement on slightly less draft.[64]

Half the hypothesis, the hull comparisons, is right on the mark, while the other half, the armament description, errs on both ships. Erroneously continuing to base his theory on the 1796 *Cyane*, Chapelle proceeds:

Overloading with armament became as much a fault in the British Navy as in the American, as can be illustrated in the case of the *Cyane*. This ship carried a total of 32 guns in 1809—22 32-pdr. carronades on her main deck and 8 carronades, 18-pdrs., and 2 long 6's on her quarterdeck and forecastle. *The effect of this on the ship was to damage her sailing qualities to a ruinous extent*. In both the American and British Navy the captains were trying to make frigates out of even the smallest ship sloops. If the Baltimore ships were anything like the plan shown here, they were far handsomer than the British vessels, *and would probably have* been faster sailers[65] *if they had been properly gunned and rigged*.[66]

Armament overloading had begun in the Royal Navy with the introduction of the carronade in 1779. There were two types of naval artillery, the traditional long gun, *i.e.*, long barrel, long range and (using 32 pounders as the example) weighing upwards of 56 cwt. (6,272 pounds) each, and the new carronade or, short gun, *i.e.*, short barrel, short range, weighing 17 cwt. (1,904 pounds) for the same caliber cannonball.[67] Recognition of this difference is essential. The aggregate weight and location, not the number of guns on board, is the determining factor in the effect of a ship's armament on its sailing qualities. The vessel reacts to the

number, type, caliber and the location of its artillery, not the number alone. The *Cyane* built in 1806 is prototypical of a change in weight of armament carried versus sailing qualities, but in a manner diametrically opposed to Chapelle's statement, for the change improved its performance.

The initial armament for both *Cyanes* and the 1809 armament for the second *Cyane* are shown in Appendix I. Relative to this later vessel, the appended tables demonstrate that the Admiralty, while increasing its broadside power in 1809, had actually reduced the weight of armament by more than 34,000 pounds. The effect on her sailing was to stiffen her, a beneficial, not detrimental result. The 17-ton main deck weight reduction was largely replaced with kentledge thereby lowering *Cyane*'s center of gravity and center of lateral resistance which improved its speed and maneuverability.

Chapelle placed the guns that were actually mounted during 1809 on the later *Cyane* on board the 1796 version, stating, "The effect of this on the ship was to damage her sailing qualities to a ruinous extent. . . ."[68] His statement grossly underestimates the effect: This weight of armament would literally have sunk the smaller ship at the artillery dock,[69] not just destroyed its sailing performance. Save for the ship he cites, his declaration that "overloading with armament became as much a fault in the British Navy as in the American, as can be illustrated in the case of *Cyane*" is accurate, as there were many examples in both the British and U.S. navies during the 1779-1815 era of commanders "overgunning" their ships. *Cyane* was not one of them.

To return to the two ships (*Maryland* and *Patapsco*) that Chapelle chose to initiate his discussion of overgunning, the assertion that they "would have probably been faster sailers if they had been properly gunned and rigged" is refuted by both his own comments and contemporary evidence. Far from being overgunned, they carried the armament they had been designed for: twenty 9-pounders and six 6-pounders.[70] It is a naval architectural corollary that physical forces impose an absolute limit on a vessel's speed through the water and warships, by their purpose and nature, were never "greyhounds of the sea." Despite his declaration that the *Maryland* performed poorly through being overgunned, Chapelle later contradicts himself by adding "the *Maryland* was said to be very fast in light weather."[71] The record of *Maryland*'s swiftness is readily accessible and speaks for itself. It proved to be one of the fastest vessels in the Navy. The following description of its speedy sailing is contained in a letter from an officer serving on board *Maryland,* to a friend in Baltimore:

> Surinam, 21 November 1799 . . . . On our cruize to windward we fell in with the United States frigate *Insurgent*. . . . [*S*]*he is the only ship we have seen that can sail with us,* and I am of opinion she can outsail us; she is a remarkably fine frigate. . . . After parting with her, we fell in with the United States ship *Portsmouth*. . . . *We have had a fair trial* of sailing with the *Portsmouth, and outsail her shamefully*; I do think we could run her nearly out of sight in 24 hours.[72]

Clearly, the records show that neither the two Baltimore ships, *Maryland* and *Patapsco,* nor the *Cyane* captured by the Americans was "overgunned" and do not support Chapelle's statement that they "would probably have been faster sailers if they had been properly gunned and rigged."

Section 4. *The Humphreys vs. Fox vs. "Unknown Authority" Theory*

Chapelle's most controversial argument with accepted naval history concerned Joshua Humphreys and the question of whether or not Humphreys, Josiah Fox, or an undiscovered third party designed the American frigate classes laid down under "AN ACT to provide a naval armament" of 27 March 1794.[73] Chapelle has an unusual fault for a naval architect when addressing the Humphreys/Fox question: He fails to differentiate between *designing* and *drafting.* The evidence supports his claim that Fox prepared some of the drafts for the 1794 frigates—but equally, it unquestionably proves that Fox did so under the direction of Humphreys, the *designer.* Conclusive evidence for crediting Humphreys' authorship exists in historic documentation,[74] in the design innovations visible in the two frigates remaining afloat today, and in the surviving Admiralty draughts of *President* and *Chesapeake,* which illustrate Humphreys' "big ship" and Fox's "small ship" concepts.

When, just prior to the publication of his *Sailing Navy,* Chapelle responded to Marion Brewington's 1949 *American Neptune* article[75] concerning the design authorship of the Revolutionary War frigate *Randolph,* he enlarged the discussion from the *Randolph* to the later 1794 frigates:

> In spite of the evidence of the letters quoted by Brewington in regard to *Hancock,* may I say (as a draftsman of some experience) that the evidence of the Admiralty draught

shows beyond question that this vessel was certainly not built to the *Randolph* draught. I have drawn the plans of both ships to ¼-inch scale and *I think I can pass on this matter now* with some authority.[76]

The doctrinaire tone of his article stands in sharp contrast to Brewington's expository approach. In his conclusion, Chapelle cites only his own convictions:

I have made certain statements about Humphreys' relative prominence that require support. *It is obvious that here I must again resort to personal* opinion.[77]

Brewington's statements are supported by sixty-three footnotes and two appendices; in contrast, Chapelle's are supported by sixty-nine "I's," seven "me's" and ten "my's," interspersed with a sprinkling of "I believe's" and "I think's," all coupled to two footnotes.

Chapelle attacked Humphreys' authorship:

I must say that I doubt very much that his [Humphreys] claim to have originated the building policy that produced the big American frigates of 1794-1796 will stand investigation.[78]

In a letter to Congressman Robert Morris, the noted Philadelphia financier, written during January 1793 before the frigates' design was officially considered, and previous to Fox's arrival in the United States, Humphreys lays out his radically unorthodox principles of warship design:[79]

[A]s our navy for a considerable time will be inferior in number, we are to consider what size will be most formidable, *and be an over match for those of an enemy*;[80] such frigate as in blowing weather would be an over match for double-deck ships, and in light winds to evade coming to action; or double-deck ships that would be an over match for common double-deck ships, and in blowing weather superior to ships of three decks, or in calm weather or light winds to outsail them.[81] Ships built on these principles will render those of an enemy in a degree useless or require a greater number before they dare attack our ships. . . .[82]

These ships should have scantlings equal to 74's. . . . As such ships will cost a large sum of money they should be built of the best materials that could possibly be procured. The beams for their decks should be of the best Carolina pine, and the lower futtocks and knees, if possible, of live oak. . . . *For my part I am decidedly of the opinion that large ones will answer best.*[83] I am respectfully, /s/ Joshua Humphreys.[84]

Discussing the origins of the design concept of the 1794 frigates under the direction of Secretary of War Henry Knox, who had served continuously since March 8, 1785,[85] and whose portfolio included naval affairs, Chapelle describes that cabinet member and his advisors as follows:

. . . Knox, who had been a bookseller [twenty years earlier] and a Revolutionary War army officer [he proved to be a brilliant artillery strategist] but had had no experience in naval or maritime affairs. Like so many office holders since, when faced with responsibility for some problem which they are personally unequipped to solve, he was forced to depend on the advice of friends and chance acquaintances.[86]

Knox may have talked with "friends and chance acquaintances" as Chapelle suggests, but he also turned to Joshua Humphreys for his extensive warship experience.[87] At this juncture in history, Philadelphia was the U.S. capital and Humphreys was a leading figure in the local shipbuilding industry, having been involved with the Continental Navy since its inception in 1776 and the Federal Navy even before it was legally constituted. Chapelle ignores these facts:

Knox's advisors cannot yet be wholly identified, though John Wharton was certainly very influential, as was also a Boston seaman named John Foster Williams. Captain John Barry, too, was relied upon by Knox for marine advice. It has not yet been discovered that any shipwright other than Wharton was consulted, though it is highly probable that Humphreys and others in the vicinity of Philadelphia were questioned informally.[88]

Contrary to this statement, Knox's advisors can be identified with certainty.

John Wharton, a relative of Joshua Humphreys, had been a partner in his shipbuilding firm since 1774.[89] Can Chapelle be suggesting that Knox consulted Wharton without the knowledge of Humphreys, his shipwright partner?

A Revolutionary War-era naval officer, John Foster Williams commanded the Revenue Cutter *Massachusetts II* in northeastern waters at the time of Knox's conferences. A rabid Anti-Federalist, it is politically unlikely that he would have been called to Philadelphia in 1794 by the Federalist government, even if his Treasury Department duties would have permitted it.[90]

Captain John Barry has been the subject of several biographies. The most scholarly version was written by William Bell Clark. The following passage from Clark's book describes the events that led to the Congressional act "to provide a naval armament":

Supine complacency ended, on December 16, 1793, when Washington notified Congress that Portugal had negotiated a year's truce with Algiers, and that Barbary pirates were again in the Atlantic. . . . In the House of Representatives, objectors' voices were stilled as a committee was appointed "to report the naval force adequate to the protection of the commerce of the United States against the Algerine corsairs, together with an estimate of the expense, and the ways and

means for defraying the same." The birth of the American navy dates from that day.

To John Barry . . . came Thomas Fitzsimmons, of the congressional committee. Who could offer better advice on the subject of naval protection than Barry? Through the Christmas holidays of 1793 and early weeks of January 1794, the Captain was engaged in constant conferences with committee members. *He and Joshua Humphreys, the ship builder, were chief sources for the information which found its way into recommendations and estimates drafted by the committee.*[91] . . . When early in March, Congress received formal notification that the Algerines had taken thirteen American vessels with crews totalling 119 men. . . . Before March ended, Congress, over-riding a noisy but less threatening opposition, authorized the construction and equipment of four frigates of forty-four guns, and two, of thirty-six guns. . . . *Within two weeks Joshua Humphreys was propounding his famous theory to Henry Knox—less ships than the navies of Europe, but each carrying as many guns on one deck as a European frigate carried on two, and each spreading so much canvas that she could sail fast enough either to fight or show her heels.* "Prepare the models for the frames of the frigates proposed by you." Knox directed the noted shipbuilder, on April 12. *While Humphreys and his draftsman, Joshua Fox toiled night and day to execute this commission,* John Barry awaited the President's decision. [Washington appointed Barry senior captain in the new U.S. Navy on 5 June 1794.][92]

Thus the Knox conferences began during Christmas week 1793 and lasted until late January 1794. Humphreys and Barry were the key opinion leaders. Clark, writing eleven years before Chapelle, explicitly defined Fox's relationship to Humphreys; nevertheless, Chapelle argued that Humphreys was not brought into the conferences until after the designs had been conceptualized:

> The new act provided for three frigates to carry 44 guns and three to carry 36 guns [the act authorized construction of four 44-gun ships and two 36-gun ships], and Knox found himself with the responsibility of getting the ships designed, built, and manned. His first step was to procure the services of a ship builder and designer. He had become acquainted with the Philadelphia shipbuilder Joshua Humphreys through John Wharton, and he now hired Humphreys to prepare designs for the two classes of frigates. Humphreys apparently did not come into the picture until late in 1793, and by this time the size of the new ships had obviously been settled upon by the conferees at the War Office, as is evident from the various departmental estimates.[93]

The second clause of the last sentence above is insupportable, whether studied through archival material or scholarly secondary writings such as Clark's. The principal "conferees" were Knox, Barry and Humphreys.[94] The size had indeed been decided upon—exactly as Humphreys had outlined to Morris a year earlier.[95] In February and March 1794, after the original drafts and models had been submitted by Humphreys, they were reviewed at the War Office by several other Philadelphia shipwrights and the suggestions of these gentlemen *that met Humphreys' approbation* were then incorporated into the building drafts.[96]

Chapelle also states, "There is no evidence yet available that Humphreys made a plan, as well as a model, at this stage in the proceedings."[97] This is refuted by the series of letters from Knox to Humphreys written in 1794.[98] In direct contrast to Chapelle's statement, these letters show that Humphreys was paid for two sets of models and two sets of drafts, one for each class of frigate, which indeed was his assignment. Writing twenty-one years after *Sailing Navy* was published, Chapelle reduced his dogmatic intensity on the subject of Humphreys' drafts:

> Humphreys prepared a model, *and probably a draft,* to show his concept of the 44-gun design, conforming to the general dimensions established by the earlier consultations between Knox and his advisers.[99]

Even at that late date Chapelle clung to his argument that there had been meetings between Knox and his "advisors" before Humphreys' involvement. In all of his writings on this subject, Chapelle alludes to such meetings, but nowhere has he given the date of or named the participants in a single one. He seems to have ignored the Knox/Humphreys correspondence, which clearly demonstrates Humphreys' role as the designer of the first U.S. frigates.

Joshua Fox, for whom Chapelle makes such a strong case as the designer of the 1794 frigates, arrived in the United States from England planning to study American timber late in 1793. Through the efforts of a relative, Andrew Ellicot, a surveyor in the employ of the government,[100] Fox was hired as a clerk in the War Department on 16 July 1794 and was assigned to assist Humphreys in laying out the moulds in the loft. The following letter from Knox to Humphreys is one of the many documents that are definitive of the relationship between Fox and Humphreys:

I request that you would have the moulds for the frigates prepared with all possible dispatch for the purpose of being transported to the following places—to wit

Norfolk	44	Gun Ship—to be addressed to William Pennock Agent
Baltimore	36	Sam'l and Joseph Sterett
New York	44	John Blagge
Boston	44	Henry Jackson

Portsmouth
New Hampshire 36 Jacob Sheafe

Mr. Fox, *who is under your direction* will also apply himself closely to this business.[101]

This confirms that by 24 July 1794 the design drafts had already been completed, and that the moulds were being manufactured by the Englishman, who had become Humphreys' assistant just eight days earlier.[102] When it came time to produce the building drafts for distribution to the six building yards, William Doughty did most of the work.[103] At the time, Fox was too busy making moulds to do any drafting.[104]

James McHenry later succeeded Knox and appointed Fox as Temporary Assistant Naval Constructor on the frigate building in Virginia. The mid-1795 frigate-construction chain of command is obvious from the following letter:

I have received your letter of the 9th., and handed it to Mr. Humphreys for his information and remarks.

His opinion on the laying of the keel of the frigate, building at Portsmouth, Virginia, is expressed in the inclosed [*sic*] copy of his letter of the 22d. to which you will substantially conform.[105]

Josiah Fox, writing on his own behalf to William Pennock, the Navy Agent at Norfolk, with whom he had a close relationship during his Navy Department career, expressed his opinion of the design of the 1794 Humphreys' frigates:

The Ships which government may build in the future, I expect will be conformable in their Dimensions, to Ships of the same Class in the British Navy, and *not such large overgrown unhandy Ships as they have intended to have Built*.[106]

This letter, dated 7 April 1797, before the first of the Humphreys' frigates, *United States,* was launched, has Fox already denigrating them as "large overgrown unhandy." These are certainly not the words of proud authorship.

Captain Thomas Thompson, a Continental Navy officer, construction superintendent of the Revolutionary War frigate *Raleigh,* and sometime Navy Agent at Portsmouth, New Hampshire, was a friend of Fox. In an exchange of personal letters, Thompson updated the progress on Fox's ship and added some commentary on Humphreys' frigate *Congress,* building in the same port:

[O]bserve what you say on the great Frigate also reduced plan of yours at Norfolk [referring to Fox's redesign and downsizing of the *Chesapeake*], *which I approve of very* [*sic*] *much in preference to those unwealdy* [*sic*] *Ships of such monstrous drafts of water* I congratulate you on your appointment [referring to Fox's promotion to Naval Constructor in 1798] and am pleased that they pay due attention to your Talents[107]

It is not only evident that Humphreys was the design originator of the 1794 frigates, but also that Fox had distanced himself from their large dimensions. The identity of the person who drew the various surviving plans is an antiquarian question and is not historiographically significant. If Fox had been the designer of the plans, as opposed to the draftsman, the ships would most likely have been laid down to the British model and the course of American history might have been altered.

When Chapelle's response to Brewington was published, his authoritarian style was taken to task by historian Eugene F. Ferguson and lawyer Clarkson A. Cranmer. Addressing Chapelle's argument Dr. Ferguson observed:

I should like to fan any controversial fires that Mr. Howard I. Chapelle's article in the July 1949 issue of the *Neptune* may have kindled. In working with both the Humphreys papers and the Fox papers, I have not reached a very satisfactory conclusion as to the relative merits of the two designers. Both, in later life, claimed much. Humphreys' claims seem more consistent.

Mr. Chapelle's statement regarding a plan of the 38-gun class of 1794 frigates is of course refuted by Humphreys' relation of the business some thirty five years later; but Humphreys also mentioned the draught before much controversy had developed.[108]

Chapelle, given the opportunity by the editors[109] of replying in an adjoining statement, introduced a mysterious background "authority" figure as the conceptual genius behind the 1794 frigates:

But, in bringing both Humphreys and Fox into something like a correct relationship we must not forget that, somewhere in the background, there was an anonymous "authority" who advised Knox and so over-rode both of the naval constructors [Fox did not become a naval constructor until four years later] by setting up the instructions. This "authority" was the real designer of the frigates and Humphreys, Fox and Doughty were actually no more than chief and draftsmen in the architects office.[110]

Here Chapelle has given us a new historical personage, "an anonymous 'authority'" who designed the trend-setting American frigates! No extant records support this fictitious "authority" figure, although there is abundant documentation in the National Archives, Records Groups 19, 24, 45, 71 and [illegible]

Humphreys and Fox Papers to establish Humphreys as the innovative designer of these ships.

Chapelle's introduction of a background authority, however, has a deeper implication than is immediately perceptible. Given Fox's antipathetic opposition to the size of the Humphreys' frigates (his Royal Navy training provided an ingrained belief in the British design philosophy of down-sized ships relative to rate), it is impossible to prepare a watertight case for his participation in, and contribution to, the design of the large American frigates, unless they had been conceived by a third party (Chapelle's "authority" figure), who willingly absorbed Fox's supplementary contributions and then directed him, along with Humphreys and Doughty to prepare the drafts. Chapelle thus casts Humphreys in the role of chief draftsman, rather than designer, and elevates Fox to a more important position than is warranted by historical evidence. Unfortunately for Chapelle's postulation, it is chronologically impossible given the 1793-1794 sequence of events.

Cranmer, commenting on the same article in the note following Chapelle's response to Ferguson, also attacked Chapelle's style of argumentation:

> I differ with you [the editors] on the propriety of publishing the above mentioned writing. *The* Neptune, *to me, is a repository of historical research based on quoted or available evidence. The Chapelle article certainly cannot qualify in this category, although perhaps a short critical note might be used.* The presentation of documented research, such as I recall the Brewington article to be, later damned by the publication of a rambling personal opinion in which acceptable sources are ridiculed, most certainly is to be deprecated.
>
> It is my impression, and I have not much doubt that a glance at the volumes of *Neptune* would bear it out, that the citation footnotes to published articles have been as important to the Editors as the texts of the articles themselves. To me, a lawyer, such citation is indicative of careful research and is evidence of reliable statements.[111]

The Brewington article focused on Joshua Humphreys' authorship of the design draft of the Revolutionary War frigate *Randolph,* but Chapelle expanded the subject in his reply, when he addressed Humphreys' relationship with American warship design during the ensuing twenty years. Brewington cites evidence in the Library of Congress: Whipple Papers; Historical Society of Pennsylvania: Humphreys Papers, Wharton and Humphreys Ledger Book and Dreer Collection (Humphreys' Dockyard Note Book), as well as other appropriate sources, and limits his discourse to the Revolutionary War frigates.[112]

Chapelle's article shifts the topic to the 1794 frigates at the bottom of his first page, defines his hypothesis on the second with the bald assertion, "I prefer to base my attempt to identify Humphreys' plans on draftsmanship alone," and introduces Fox (who didn't arrive in the United States until seventeen years after the *Randolph* had been designed) into his argument immediately thereafter. Chapelle designated the boundaries of his topic with his title, "The Design of the American Frigates of the Revolution and Joshua Humphreys," but on the first page of his essay, he has already exceeded them. And the following statement, coming from an author who had altered primary source plans in each of his books, is enigmatic:

> It may be well to point out that in making my argument I am presenting the opinion of a draftsman and basing the opinion on the plans, rather than on documents written by either Humphreys or any official. I think this is permissible for, in matters of ship design, it seems to me that the plans are the primary evidence.[113]

Chapelle thus effortlessly divorces himself from all pertinent archival material, other than the surviving plans, and fails to point out that whereas a designer frequently hires a draftsman to complete his design drafts he does not pass on the design authorship to his employee in doing so.

Ferguson, in his closing comments on the Chapelle article, identifies the need for further effort to relate the American frigates to the larger issue of shipbuilding technology:

> The building of the 1794 frigates has a definite place in the history of technology of shipbuilding, which technical men and historians alike have so far shunned. Until more interest is shown in technical history by people competent to write it, we are not likely to have a satisfactory appraisal of Humphreys and his contemporaries. Nevertheless, the publication of the Humphreys papers would be an important addition to the literature of shipbuilding.[114]

Warship construction in the eighteenth century was centered in Great Britain, France and Spain. Although design philosophies varied, shipbuilding practices were basically similar. From a theoretical point of view, the British opted for smaller, slower hull shapes carrying many guns, while the French build large, fast vessels relative to the number of cannon on board. The Spanish concentrated on immense line-of-battle ships and fast frigates to protect their bullion vessels. Holland and Sweden were secondary shipbuilding centers but had little effect on oceanic warships. Swedish ships were built primarily for Baltic service, while

even the largest Dutch ships were built with shallow draft to suit their home waters.

Humphreys' 1794 designs were a notable departure from contemporary naval architecture and brought a new interpretation of the term "large frigate." The innovative structural system of diagonal riders he designed to strengthen the vessels' frames made the increase in hull length possible without the usual penalty of excessively deepening (thereby increasing the ship's draft and reducing its maneuverability) or broadening (thereby reducing its speed capability). These penalties were inconsequential to a line-of-battle ship but critical important to a frigate, which was intended to operate in shallower waters.

The *Concise Dictionary of American Biography* describes Humphreys as:

> A leader in his profession by 1776, Humphreys fitted out at his Philadelphia shipyard the Continental fleet that sailed that year under Esek Hopkins. After passage of the act of 1794 providing for a naval force of six frigates, Humphreys suggested improved radical designs which were adopted. . . . Longer, broader, lower in the water, carrying more canvas than any vessels of their class afloat and superior in fire power, these ships became famous for their speed and individual accomplishments. Humphreys served as first U.S. naval constructor, 1794-1801.[115]

On the other hand, Fox has inadvertently been victimized by the Humphreys/Fox furor; he laid out the specifications for most of the U.S. naval vessels that took part in the Quasi-War with France (1798-1801), but has yet to receive appropriate credit for these efforts. After the French war he designed several other American warships.[116]

The two frigates captured by the British in the War of 1812, *President* and *Chesapeake,* were drafted by the office of the Surveyor of the Navy and provide a unique opportunity under equal circumstances to demonstrate the definitive difference between a Humphreys and a Fox frigate. Fox intended his shrunken *Chesapeake* to be rated as a 44-gun ship, and serve as his archetype for this class of warship. Secretary of the Navy Benjamin Stoddert wrote to Navy Agent William Pennock at Norfolk:

> Believing that there will be occasion for this ship in the spring, doubting whether it would be possible to have her ready so early without materially altering her dimensions, and, indeed, *not being entirely satisfied of the policy of increasing the size and expense of our frigates so far beyond what is known in Europe without increasing their force, I have determined, although the keel has been laid, to reduce the size of the frigate at Norfolk to the largest-size frigates in the British Navy. This, Mr Fox assures me, can be done with very great advantage,* and with a prospect of finishing the ship in half the time it would take to complete her on the former scale, and with half the expense. In persuance [*sic*] of this idea, I now enclose you the dimensions by which the frigate is to be built. The keel, already laid, must of course be cut, and some alterations must be made in the stern. This, Mr Fox informs me, can easily be done. . . . The greatest inconvenience will be in altering the moulds. This, Mr Fox says, he can do in full time after getting to Norfolk.[117]

Fox confirmed this intention in a letter to Pennock: "The Secretary of the Navy haveing [*sic*] consented that I should repair to Norfolk for the purpose of Constructing the 44 Gun frigate there." With it he enclosed "Dimensions of a Frigate calculated to mount 28 Eighteen Pounders on her main Deck and 16 Nine pounders on the Quarter Deck and Fore Castle."[118]

If Chapelle had limited his argument to authorship of the drafts rather than extending it to the designs, he would have been correct. The Humphreys and Fox papers, as well as the National Archives material, all attest to Fox's draftsmanship. They also convincingly rebut Chapelle's argument against Humphreys as the designer. But the final proof lies in the product itself—Humphreys was an ardent advocate of ships large for their rate, and Fox of small ones—and the first American frigates were very large ships.

Chapelle's final verdict on the genius of Joshua Humphreys is less than generous, as expressed in his response to Ferguson's comments:

> I was aware of the Humphreys' claims and had carefully examined them; the result will be seen in my *History of the American Sailing Navy*. But, here, I wish to say that one conclusion I have reached regarding Humphreys is that he was a master of distorting evidence. His statement, as quoted by Mr. Ferguson, appears to be a partial truth only that tends to create a favorable impression of his claims. This is accomplished by truthfully describing occurrences but placing them out of correct sequence. The story he presents can be judged by the facts. When Humphreys had presented his model—and nowhere in the correspondence was there any mention of a draught—Knox discussed the design with his advisors, Barry among them.[119]

At the time he wrote this, *Sailing Navy* had just been published. It is difficult to ascertain what "correspondence" Chapelle is referring to, but it is patently obvious that he did not read all that was available in 1949. The War Department correspondence mentions both models and draughts. Brewington indisputably read the appropriate documents for they are duplicated in his research papers at the G.W. Blunt-White Library. The letter Ferguson cites was written by Humphreys

to Timothy Pickering on 14 May 1795 after Josiah Fox had, upon Humphreys' recommendation, been appointed Temporary Assistant Naval Constructor at Norfolk. It was not written after the event to distort the evidence, but in the middle of the construction process! In a statement far more generous and telling than Chapelle's, Humphreys wrote:

> I do not wish to take from M[r]. Fox or lessen his merit, or even to give the most distant hint of his want of capability in the business, on the other hand I think there are few men in this quality equally qualified, he is well informed & his judgement good.[120]

5. *Conclusion*

Chapelle searched, discovered and recovered an immense array of artifacts, plans and data concerning an important segment of American maritime history, thereby conserving them for posterity. Ronnberg's evaluation of this is apt:

> I do not want to leave the impression that I am trying to impeach the honesty or good intentions of Howard I. Chapelle. Given the enormous output of this man from the late 1920s to 1974 (and even later, as there is likely to be considerable posthumous publication of his studies), it is only natural to expect errors and much incomplete analysis, and any criticism must be tempered by this consideration. Chapelle will be remembered for the volume of material he saved from oblivion and his splendid perception of the historical roles of American watercraft. The dizzying pace of his work left no time to quibble over details, and he was probably unsuited by temperament to do so. Chap was a great "*gatherer*" whose appearance in this field was both timely and crucial.[121]

When *Sailing Navy* was published in 1949, Chapelle was forty-eight years old and at the peak of his powers. He was not the benign and aging lion many remember when he was in his seventies. Always "the man in a hurry," Chapelle lacked the patience for the time-consuming, frustratingly tedious task of historical research and employed authoritarian statement to cover precipitous practices. Yet, let there be no doubt concerning Chapelle's vast contributions to our field. Spectre justly describes Chapelle's manner of "walking the terrain":

> Chapelle was simply driven by the idea that this culture, these artifacts, were disappearing on his watch, and it was his duty to conserve as much as possible. . . . Chapelle was involved in research of the most basic sort. Indeed, he studied in libraries and archives; but his prime sources were shipyards, boatshops, wharves and warehouses. Howard Chapelle was doing what almost no other maritime historian was doing. He was singlehandedly defining the scope of the history of small-vessel naval architecture.[122]

The amazing volume of Howard I. Chapelle's work has always been appreciated, and deservedly so; nonetheless, the time for revision and addition is long overdue.

The fault that The History of the American Sailing Navy *has lain unchallenged for forty years simply cannot lie with its author*; rather, the problems and errors in its contents point to a profound deficiency in the realm of maritime historical scholarship, namely, the absence of a strong tradition of historiography. Have recent writers overlooked the maturation process of any historical discipline: the historiographic argument? *Sailing Navy,* obviously flawed and obsolete, remains today as the most widely read and quoted resource on American wooden warships, 1776-1855. In any other field of history there would have been two or three generations of "revisionist" interpretations superceding the work of the pioneering scholar, in this case Chapelle, providing the essential correctives needed to ensure accuracy.

Once the narratives have been revised, however, the larger issue must be addressed: what was their effect on the United States? It is my contention that a significant historical gap exists respecting our failure to measure the impact of the American sailing navy on the development of the national character.

The nation's nascent maturation occurred in the twenty-one year period that fell between "AN ACT to provide a naval armament" of 27 March 1794, and *Constitution*'s last angry broadsides on 20 February 1815. From *Constellation*'s victories over two French frigates in 1799 and 1800 to *Constitution*'s 1804 cannonades against the forts at Tripoli, to the *President*'s revenge-spurred 1811 attack on the little *Lille Belt,*[123] to the five British warships sunk or captured by *Constitution* and *United States* during the War of 1812, Joshua Humphreys' frigates have yet to be placed into their deserved context—the effect those ships had on the shaping of our national self-image.

Wherein does the literature of American naval history conduct an intellectual, cultural or social analysis of this relationship?

ENDNOTES

1. Without suggesting their endorsement of his argument and observations, the author wishes to express appreciation to Edward L. Beach, William S. Dudley, Ira Dye, Derek G. M. Gardner, JoAnn J. King, William J. Morgan, James Valle and Virginia Steele Wood for the time they expended in reading the early versions of this monograph. Additional thanks are extended to Henry P. Silka, for editing, Dr. Ruth S. Cowan of the History Department, S.U.N.Y. at Stony Brook, for her enduring patience and finally, to my colleague at S.U.N.Y., Marsha Meldrum, whose logic forced me, seven drafts and as many years later, to revise my conclusions at the end of the beginning.

2. New York: W. W. Norton, 1949.

3. With Leon Polland, Washington: Smithsonian Institution Press, 1970.

4. First published Salem, Mass.: The Marine Research Society, 1930.

5. New York: W. W. Norton, 1935.

6. New York: Kennedy Publishing, 1936.

7. New York: W. W. Norton, 1936.

8. New York: W. W. Norton, 1941.

9. A gundalow, as employed on lakes and rivers during the Revolutionary War, was a double-ended vessel with either a flat bottom or shallow deadrise that could be propelled by sail or oars, whose purpose was to mount a small number of heavy cannon. *Philadelphia* mounted two side-by-side long nines amidships, one facing to port and the other to starboard, and a long twelve in the bow.

10. Peter H. Spectre, "The Legacy of Howard Chapelle," *Nautical Quarterly* 40 (Winter 1987): 117.

11. "The First Clipper," *The Mariner's Mirror* 34 (January 1948): 26-33.

12. Washington: The Smithsonian Institution Press, 1960.

13. With Edwin Tappan Adney, Washington: Smithsonian Institution: United States National Museum, Bulletin 230, 1964.

14. New York: W. W. Norton, 1967.

15. New York: W. W. Norton, 1973.

16. R. T. Cassidy, "Chapelle: The Saver of Sailing Ship Plans," *Sea Heritage News* 18 (1986): 8.

17. John Lyman, review of *The History of the American Sailing Navy* by Howard I. Chapelle, *The American Neptune* 10 (January 1950): 74, emphasis added.

18. Peter H. Spectre, "The Legacy of Howard Chapelle," *Nautical Quarterly* 40 (Winter 1987): 118, emphasis added.

19. Howard I. Chapelle, "The Design of the American Frigates of the Revolution and Joshua Humphreys," *The American Neptune* 9 (July 1949): 165.

20. Chapelle, *Sailing Navy*, xv.

21. *American Neptune*, 10:74-75, emphasis added.

22. Plan 7343, Draughts Box 34, National Maritime Museum, Greenwich, London, England (hereinafter cited as N.M.M.).

23. Plans 6174-7177, Draughts Box 35, and Plans 6178 and 8255-8257, Draughts Box 36, N.M.M.

24. Plans 2285 and 2285A, Draughts Box 38, N.M.M.

25. Plan 1305, Draughts Box 25, N.M.M.

26. Plans 2400 and 2400A, Draughts Box 40, N.M.M.

27. Plans 2351-2354, Draughts Box 39, N.M.M.

28. Chapelle, *Sailing Navy*, 336, emphasis added.

29. Lieut. George F. Emmons, *The United States Navy, 1775-1853* (Washington: Gideon & Co., 1853), 11, and *Dictionary of American Naval Fighting Ships*, (Washington: Government Printing Office, 1977, first published 1963), 2:363.

30. The dead flat is the structural center of a wooden ship. It is a point marking the largest, central pair of frames constituting the ship's skeleton. The procedure of splitting an older hull at this location was first employed by the U.S. Navy on the frigate *Adams*, which was converted to a corvette and extended 13 feet at Washington Navy Yard in 1813. Other ships that were lengthened during their careers included:

Sloop-of-war *Vandalia*	1848 13-ft. extension.
Frigate *Constellation*	1853 12-ft. extension.
Ship-of-the-line *Franklin*	1854 75-ft. extension.
Sloop-of-war *Vandalia*	1872 76-ft. additional extension.

31. Receipt Book, Journals of Captain Samuel Evans, Commandant New York Navy Yard, 1814-1824, New York Public Library.

32. Chapelle, *Sailing Navy*, 359-360, emphasis added.

33. Report of Master Carpenter Josiah Fox to Master Commandant Samuel Evans, Commanding Officer, U.S. Ship *John Adams*, Washington Navy Yard, 17 May 1809, Letter Book IV, pages 432-435, Fox Papers, Phillips Library, Peabody Museum of Salem, Massachusetts.

34. Drawing C&R#85740, Records of the Bureau of Ships, Records Group 19, National Archives, Washington, D.C. (hereinafter cited as RG 19, NA).

35. W. M. P. Dunne, "The South Carolina Frigate: A History of the U.S. Ship *John Adams*," *The American Neptune* 47 (Winter 1987): 22-31.

36. First published in a series of *Baltimore Sun* articles in 1946-1947.

37. Dated from her keel laying in 1795.

38. John McKay, *The 100-gun ship* VICTORY, London: Conway Maritime Press Ltd., 1987, 9.

39. Log of the Norfolk Navy Yard, 1851-1855, kept by Master Henry A. F. Young, RG 45, NA, disproves this statement.

40. The only designs prepared at this time were for the alteration to the stern, the removal of the upper works and the extension to the keel, all by Naval Constructor E. H. Delano.

41. *Dictionary of American Naval Fighting Ships* 2:170-173.

42. Chapelle, *Sailing Navy*, 466-468.

43. Log book of the Norfolk Navy Yard, 1851-1855.

44. *Ibid.*

45. *Southern Argus*, Norfolk, Va., 25 July 1853, Library of Congress, Newspaper Archives.

46. Chapelle and Polland, *The* Constellation *Question*, 59.

47. *Ibid.*, 4, citing the *Baltimore Sun* articles of 1946-1947.

48. Sanford Sternlicht and Edwin M. Jameson, *U.S.F.* Constellation: "*Yankee Racehorse*" (Cockeysville: Maryland, 1981), 172.

49. Franklin D. Roosevelt, Acting Secretary of the Navy, to the Director of the Bureau of Construction and Repair, 31 July 1913, in Evan Randolph, "U.S.S. *Constellation*, 1797 to 1979," *The American Neptune* 39 (October 1979): 247, citing 18013-E (1913), RG 19, NA.

50. *Ibid.*, 236-237.

51. For a scholarly dissertation on the qualities of live oak see Virginia Steele Wood, *Live Oaking: Southern Timber for Tall Ships* (Boston: Northeastern University Press, 1981), *passim*.

52. H. I. Chapelle to Erik A. R. Ronnberg, Jr., 22 January 1973, in Ronnberg's files.

53. Spectre, "Legacy," 118.

54. James Buchanan, Baltimore merchant and ship-owner, to Secretary of State Timothy Pickering, 5 September 1799, Captain

Dudley W. Knox, U.S.N. (Ret.), ed., *Naval Documents Related to the Quasi-War Between the United States and France,* (Washington: Government Printing Office, 1934), 4:159-160.

55. Chapelle redrafted this plan, which he found at Washington Navy Yard. It is no longer extant.

56. For the construction history of the 1796 *Cyane* sloop, see Plan 3029, Draughts Box 45, Plans 3514, 3516, 3142-3, 3145, Draughts Box 46, and ADM168-Contract Specifications, N.M.M. Also references ADM95/54-5, /79, and /141, Public Records Office, Kew, London, England (hereinafter cited as P.R.O.).

57. *Sailing Navy,* 156, emphasis added.

58. For this *Cyane*'s construction history see ADM1/1088, ADM95/80, Part 158, and ADM106/2238, P.R.O.; ADM168/155, *Banterer*-class specifications contract and Plans 2942-4 and 2946-7, Draughts Box 44, N.M.M., for the class draughts.

59. Court martial of Captain George Cadogan for the loss of the 1796 *Cyane, passim,* ADM1/5370, P.R.O., proving this ship was captured by the French in 1805.

60. On February 20, 1815, *Cyane* and her smaller, but senior consort, the ship-sloop *Levant,* encountered the U.S. Frigate *Constitution.* After a forty-minute battle marked by the brilliant maneuvering of Captain Charles Stewart in *Constitution,* during which "the British ships were ably handled," both enemies struck their colors. Theodore Roosevelt, *The Naval War of 1812* (New York: G.P. Putnam's Sons, 1882), 421.

61. From notes made during this writer's conversation with Lyon at the National Maritime Museum, 20 April 1983.

62. The American and British systems of measurement differed in the monuments (datum points) used to take off a ship's admeasurements. Chapelle's phrase "using the American system of measurement" is puzzling as the dimensions he lists above have been taken directly from one of the *Plover*-Class building drafts, Plan 3516, and would have been recorded in the British measuring system by the Surveyor of the Navy. Chapelle titles the beam "moulded" while the plan titles it "extreme," and perhaps this is an "Americanization." The 1796 *Cyane,* as built, was slightly larger than the *Plover* class dimensions. Her Admiralty Overseer, Thomas Woods, reported the figures to the Surveyor's office on 9 April 1796 as, 111 ft. 9 in. between perpendiculars, 29 ft. 7 in. extreme beam and 423 & 8/94ths tons. ADM95/54, /55, /79 and /141, P.R.O.

63. The British ships carried 28 guns; for the correct armament complement carried on board the 1796 *Cyane,* see Appendix I, Table 1.

64. Chapelle, *Sailing Navy,* 156-7.

65. *Maryland* was recorded as a fast, effective cruiser. See page 48.

66. Chapelle, *Sailing Navy,* 157, emphasis added.

67. General Sir Howard Douglas, *A Treatise on Naval Gunnery* (London: John Murray, 1855, fourth edition, first published 1819), 601 ff.

68. Chapelle, *Sailing Navy,* 157.

69. By increasing its static weight of armament to the point of overwhelming the ship's designed displacement, buoyancy and stability characteristics.

70. Letter Book III, page 134, Fox Papers, 18-gun ship specifications. In his warship specifications, Fox generally established rates by totalling the number of main deck cannon less stern chasers.

71. Chapelle, *Sailing Navy,* 154. Author's note: The sailing performance of a vessel in light weather is more seriously impeded by the dynamic effect of excess weight than the same vessel with the same impediment in heavier weather.

72. *Federal Gazette & Baltimore Daily Advertiser* (Md.), 24 December 1799, Library of Congress, emphasis added.

73. Benjamin Homans, compiler, *Laws of the United States In Relation to the Navy and Marine Corps; to the Close of the Second Session of the Twenty-Sixth Congress* (Washington: J. and G. S. Gideon, 1843), 31.

74. See Appendix II, as well as RG 19 and RG 45 citations.

75. Marion V. Brewington, "The Design of Our First Frigates," *The American Neptune* 8 (January 1948): 11-25. Brewington's research files for this article have recently been donated to the G.W. Blunt-White Library, Mystic Seaport Museum, Mystic, Connecticut and are readily available to scholars.

76. Howard I. Chapelle, "The Design of the American Frigates of the Revolution and Joshua Humphreys," *The American Neptune* 9 (July 1949): 165. Emphasis added.

77. *Ibid.,* 167. Emphasis added.

78. *Ibid.,* 161.

79. Brewington, "First Frigates," *passim.*

80. Each of the following encounters proved Humphreys' prescience: The *Constellation*'s battles with *L'Insurgente* and *La Vengeance* in the Quasi-War with France and the *Constitution*'s victories over *Guerriere, Java, Cyane* and *Levant,* as well as the *United States*' defeat of *Macedonian* in the War of 1812.

81. "Some persons may imagine, that a stout, compact side would act as an impediment to sailing; a point so essential in a ship of war. On the contrary, the American ships are, proverbially, swift sailers." William James, *A Full and Correct Account of the Chief Naval Occurrences of the Late War Between Great Britain and the United States of America,* London: T. Edgerton, 1817, 19.

82. The success of Humphreys' theories is best borne out in the confidential directive sent by John Wilson Croker, First Secretary of the Admiralty, to all Royal Navy frigate commanders in 1813, "I have their Lordships' commands to acquaint you therewith, and that they do not conceive that any of his Majesty's frigates should attempt to engage, single handed, the larger class of American ships. . . ." Louis J. Jennings, *The Croker Papers,* 2 Volumes (New York: Charles Scribner's Sons, 1884), 1:40. During the War of 1812 the British employed over 100 warships in an attempt to blockade the American frigates (which never totalled more than eight in commission for ocean service at any one time) in port. Despite this massive effort, only *Constellation* failed to reach the ocean; nevertheless, it was a critical factor in the defense of Norfolk throughout the war.

83. Humphreys' three 44-gun frigates, *United States, Constitution* and *President,* were the largest and most powerful frigates in the world until 1814, when the British built *Leander* and *Newcastle* of approximately equal size to combat the American ships.

84. Humphreys to Morris, 6 January 1793, Joshua Humphreys Letter Books, Historical Society of Pennsylvania, Philadelphia, Pa., emphasis added.

85. Robert I. Vexler, *The Vice-Presidents and Cabinet Members* (Dobbs Ferry, N.Y.: Oceana Publications, Inc., 1975), 17.

86. Chapelle, *Sailing Navy,* 117.

87. Knox/Humphreys correspondence, Humphreys Letter Book.

88. Chapelle, *Sailing Navy,* 118.

89. Wharton & Humphreys Ledger Book, Historical Society of Pennsylvania, Philadelphia.

90. Williams' political proclivities are identified in the following letter: "To give her [the U.S. Revenue Cutter *Pickering* then under construction] to J. F. W., would be to render her useless. He is old, without enterprise, & has been not a little tainted in his politics." T. Williams of Boston to his uncle, Timothy Pickering, 31 May 1798, Pickering Papers, Vol. 22, Massachusetts Historical Society, Boston.

91. The committee's report appears in Ashbury Dickens and

John W. Forney, Editors, *American State Papers, Class VI, Volume I, Naval Affairs, Documents, Legislative and Executive, of the Congress of the United States* (Washington: Gales and Seaton, 1861), 1:1.

92. William Bell Clark, *Gallant John Barry 1745-1803* (New York: The Macmillan Company, 1938), 365-68, emphasis added.

93. Chapelle, *Sailing Navy*, 119.

94. Clark, *Barry*, 368.

95. Humphreys to Morris, 6 January 1793.

96. Humphreys to Pickering, 14 May 1795, Subject 9839, Shelf OR40, U.S. Naval Historical Center, Washington Navy Yard.

97. Chapelle, *Sailing Navy*, 120.

98. See Appendix II.

99. Chapelle and Polland, *The* Constellation *Question*, 7, emphasis added.

100. Merle T. Westlake, Jr., "Josiah Fox, Gentleman, Quaker, Shipbuilder," *The Pennsylvania Magazine of History and Biography* 88 (July 1964): 316.

101. Knox to Humphreys, 24 July 1794, Humphreys Letter Books, emphasis added.

102. Knox to Fox, 16 July 1794, Letter Book I, page 1A, Fox Papers.

103. William Doughty was a bookkeeper employed in the Treasury Department who had an interest in naval architecture. He had been seconded to the War Department to assist in draughting the frigates plans. His later tenure as a naval constructor far exceeded that of his mentors, Humphreys and Fox.

104. See note 101.

105. McHenry to Fox, 23 June 1795, enclosing Humphreys' directions of 23 June 1795, Correspondence, when Navy was under War Department (Microfilm Publications, M209, Roll 1), RG 45, NA.

106. Fox to Pennock, 7 April 1797, Letter Book III, page 132, Fox Papers, emphasis added.

107. Thompson to Fox, 27 October 1798, Letter Book I, pages 287-288, No. 8, Fox Papers, emphasis added.

108. Eugene F. Ferguson, letter, *American Neptune* 10 (January 1950): 65.

109. In 1949 the editors, in addition to Chapelle and Brewington, were Walter Muir Whitehead, Alexander C. Brown and Samuel Eliot Morison.

110. Howard I. Chapelle, letter, *American Neptune* 10 (January 1950): 68.

111. *Ibid.*, Clarkson A. Cranmer, letter, emphasis added.

112. Brewington, "First Frigates," *passim*.

113. Chapelle, "Design of the American Frigates," 166.

114. *Ibid.*, Ferguson.

115. Joseph G. E. Hopkins, Managing Editor, *Concise Dictionary of American Biography* (New York: Charles Scribner's Sons, 1964), 467.

116. Most notably the unlucky frigate *Chesapeake* (1798-1813) and the famous sloops *Wasp* (1806-1812) and *Hornet* (1805-1829).

117. Stoddert to Pennock, 17 July 1798, Navy Department General Letter Book (M209, Roll 1), RG 45, NA, emphasis added.

118. Fox to Pennock, 28 August 1798, Letter Book II, page 1, Fox Papers.

119. *American Neptune* 10:66.

120. Humphreys to Pickering, 14 May 1795.

121. Erik A. R. Ronnberg, Jr., "Fishing Schooner *Elsie*, 1910: Research and Plans for Ship Model Construction, Part I," *Nautical Research Journal* 2 (1987): 77, emphasis added.

122. Spectre, "Legacy," 118.

123. Often erroneously referred to as the *Little Belt*. This Danish vessel was captured by the British on 7 September 1807 at Copenhagen and was to have been renamed *Espion*. J. J. Colledge, *Ships of the Royal Navy*, 2 Volumes (Newton Abbot, Devon: David & Charles Ltd., 1969), 1:321.

APPENDIX I

TABLE 1—ARMAMENT OF THE 1796 *CYANE*[1]

Location	*Number and Type*	*Unit Weight*[2]	*Gross Weight*
Gun deck	18 thirty-two-pounder carronades	1,918	34,524
Quarter deck	6 twelve-pounder carronades	654	3,924
Forecastle	2 twelve-pounder carronades	654	1,308
Forecastle	2 six-pounder long guns	1,904	3,808
Total cannon		=	28
Total broadside weight (in pounds)		=	342
Total weight in armament (in pounds)		=	43,564

TABLE 2—ORIGINAL ARMAMENT OF THE 1806 *CYANE*[3]

Location	*Number and Type*	*Unit Weight*	*Gross Weight*
Gun deck	22 nine-pounder long guns	3,528	77,616
Quarter deck	2 six-pounder long guns	1,904	3,808
Quarter deck	4 eighteen-pounder carronades	947	3,788
Forecastle	2 eighteen-pounder carronades	947	1,894
Forecastle	2 six-pounder long guns	1,904	3,808
Total cannon		=	32
Total broadside weight (in pounds)		=	165
Total weight in armament (in pounds)		=	90,914

TABLE 3—1808 ARMAMENT ALTERATION TO THE 1806 *CYANE*[4]

Location	*Number and Type*	*Unit Weight*	*Gross Weight*
Gun deck	22 thirty-two-pounder carronades	1,918	42,196
Quarter deck	2 six-pounder long guns	1,904	3,808
Quarter deck	4 eighteen-pounder carronades	947	3,788
Forecastle	2 eighteen-pounder carronades	947	1,894
Forecastle	2 six-pounder long guns	1,904	3,808
Total cannon		=	32
Total broadside weight (in pounds)		=	418
Total weight in armament (in pounds)		=	55,494

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1. List of H.M. Navy 1795-1807, RUSI/NM/77, N.M.M., and Colledge, *Ships of the Royal Navy*, 2 vols. (Newton Abbot, Devon: David & Charles Ltd., 1969), as *Termagant*, 1:553.

2. All unit weights may be found on the Royal Navy Gunner's Rule reproduced in Peter Padfield, *Guns at Sea* (London: Military Book Society, 1973), and verified in Douglas, *Treatise on Naval Gunnery*.

3. N.M.M., ADM/A/2994, Armament and Complement Order.

4. N.M.M., RUSI/NM/77, List of H.M. Navy 1795-1807, and RUSI/NM/64, Navy List through 31 December 1816.

TABLE 4—ARMAMENT ON BOARD THE 1806 *CYANE* WHEN CAPTURED IN 1815[5]

Location	*Number and Type*	*Unit Weight*	*Gross Weight*
Gun deck	22 thirty-two-pounder carronades	1,918	42,196
Quarter deck	6 eighteen-pounder carronades	947	5,682
Forecastle	2 eighteen-pounder carronades	947	1,894
Forecastle	2 nine-pounder long guns	3,528	7,056
Total cannon		=	34
Total broadside weight (in pounds)		=	433
Total weight in armament (in pounds)		=	56,828

APPENDIX II

PART 1: LETTERS—KNOX TO HUMPHREYS[6]

On 3 February 1794 Knox wrote to Humphreys;

> General Knox's compliments to Mr. Humphreys—and will be happy to have a conference with him at the War Office any time before three o'clock this day, if it will be convenient to Mr. Humphreys.

On 12 April 1794 after passage of the act:

> I request that you would please immediately to prepare the models from the frame of the frigates proposed in your letter of this date and also that you would please to prepare an accurate draft, and models of the same, the latter to have the frames accurately described.

On 21 June 1794:

> The building for making the moulds, being so essential no time should be lost in putting it in a train of instant execution. It ought to be framed so that if no further use should be required for it that it may be sold to the best advantage. I request that you would after negociating [*sic*] with several of the most eminent carpenters for the erection of this building engage with the cheapest and also contract for the materials, and I will arrange payment in the course of a few days.

On 28 June 1794:

> You are appointed the Constructor or Master Builder of a Forty-four Gun Ship, to be built in this port of Philadelphia at the rate of compensation of Two thousand dollars p annum.
>
> This compensation is to be considered as commencing on the first day of May last, *in consideration of your incessant application to the public interest in adjusting the principles of the Ships, drawing of drafts and making models &c.*

PART 2: LETTER—HUMPHREYS TO SECRETARY OF WAR PICKERING[7]

Dated 14 May 1795, after Josiah Fox, upon Joshua Humphreys' recommendation, had been appointed temporary assistant naval constructor at Norfolk:

> Permit me to observe on seeing your Instructions to Mr Fox That soon after the commencement of Building the Frigates, I was directed to prepare a draft & model for them, the Model was presented to the late Secretary of War [Knox] and is now in your office. in Order to make the most perfect ships, the best Shipwrights of this port called in to give their opinion on the model, which they did candidly. I was then directed to make such alterations in the formation of the Frigates Body, as was conformable to the general Idea [Humphreys' original proposal]. Mr Fox was appointed under me to carry the same into effect; accordingly I directed him to prepare a draft agreeably to the directions I had received, but I conceived he did not strictly conform to those directions in the drawing of the draft; which induced me immediately to sett [*sic*] about drawing myself and I produced those the Frigates are to be built by, without Mr Fox's advice or assistance, but conformable to the directions I had received; while I was drawing the draft of the 36 gun Frigates, making out the dimentions [*sic*], size of scantling & the mode of putting the timber together and fastening it; Mr. Fox was laying down the 44 Gun ships in the mould loft, when that was finished Mr Fox and Mr Doughty went to coppying [*sic*] the Drafts to be sent to the different builders for the 44

5. Report of Lieut. Beekman V. Hoffman to Secretary of the Navy Benjamin Crowninshield, listing *Cyane*'s admeasurements, and armament, *Niles Weekly Register* 8:134, Library of Congress, and Mariner's Museum, Newport News, Virginia, *Report Submitted by the Chairman of the Committee on Naval Affairs Exhibiting The Naval Force of the United States on The First of January, 1816* (Washington: William A. Davis, 1816).

6. Humphreys Letter Books.

7. See Note 96.

Gun Ships, and while they were about that business I was laying down the 36 Gun Ships in the Mould loft. Those are facts I conceive had not come to your knowledge and i hope you will not consider it improper in me to state them to you at this time; and altho it is so, I do not wish to take from Mr Fox or lessen his merit, or even to give the most distant hint of his want of capability in the business, on the other hand I think there are few men in this quality equally qualified, he is well informed & his judgement good.

W. M. P. Dunne is an adjunct professor of history and literature at L.I.U., Southampton Campus and a Ph.D. student and T.A. at S.U.N.Y. at Stony Brook, N.Y. He is an historical writer/researcher specializing in the history of the American sailing navy from 1794 through 1860, whose credits include: co-editing and contributing to P. C. Coker III's, A Maritime History of Charleston *in 1987; a collaboration with Captain E. L. Beach, U.S.N. Ret'd on his 1986 book* The U.S. Navy: 200 Years; *a 5,000 word article in the Winter '87 edition of* The American Neptune; *two essays in* The Mariner's Mirror, *the English quarterly journal of the Society for Nautical Research; a 1983 contribution to the P.B.S. television program* The U.S.S. Constitution: Isaac Hull Goes to War *and several other historical papers. He has written forthcoming articles for the* Pensacola Historical Review *and the* Nautical Research Journal, *and is currently writing biographies of Stephen Decatur and Thomas Francis McManus, as well as a novel about the War of 1812.*

Book Reviews

SCOTT S. SHEADS, *The Rockets' Red Glare; The Maritime Defense of Baltimore in 1814* (Centreville, Maryland, Tidewater Publishers, 1986). 5½" × 8½", paper, xii + 156 pages, 7 black and white illustrations, maps, appendices, notes, bibliography, index. $8.95.

Scott S. Sheads, who has served as ranger-historian at Fort McHenry National Monument and Historic Shrine since 1978, must be a true example of a man who loves his work. In this slim monograph which contains just over one hundred pages of narrative text, he has sought to provide a detailed account of the attack on Baltimore which gave rise to the penning of *The Star-Spangled Banner* and inflicted on the British the first real defeat they experienced in their year-and-a-half long campaign to destroy American civil and military power in the Chesapeake Bay region. In leading up to his main subject he describes in detail the composition of Commodore Barney's Chesapeake Flotilla, the movements of the British amphibious force which led to the burning of Washington and the creation of a mixed collection of Sea Fencibles, Maryland Militia, odds and ends of the regular Army and Navy personnel and a volunteer force of masters, mates and pilots recruited from merchantmen idled by the British blockade.

This diverse agglomeration of regulars and citizen-soldiers undertook to defend Baltimore without the benefit of clear lines of command and in the absence of any real help from the federal government which was in extreme disarray following the massive defeat sustained at Bladensburg and the burning of the national capital. That they succeeded in their task was a minor miracle ascribable in part to their own dedication and bravery and also to the death of the talented and energetic British army commander, General Robert Ross in an early skirmish with American militiamen. With Ross' death the redcoats lost momentum and their advance on Baltimore stalled. Bombardment by the British Fleet was not sufficient to compel the Americans to surrender by itself, so, after an impressive display of fireworks immortalized by Francis Scott Key, they sailed away leaving the vital shipyards and other nautical assets at Baltimore intact.

This is a compelling story and one of real significance, but Mr. Sheads' treatment of it suffers to some extent because of the way he has chosen to develop it. With a wealth of archival material and primary sources at hand he has relied on frequent and lengthy quotes from original letters, diaries and reports. These give the authentic flavor of the times and provide fine eyewitness accounts of the various events relating to the struggle to defend Baltimore but they can be overdone. The constant juxtaposition of writing styles and points of view makes for an overall narrative that is prolix and hard to follow. Somehow the overall picture of the siege fails to emerge with real clarity. There is not enough descriptive writing to pull the story together. Without the presence of a few well drawn maps the task of developing an accurate idea of what was really happening would have been tortuous to say the least. The resulting volume, complete with its detailed muster rolls, will interest Baltimorians, particularly those who had ancestors who took part in the battle. The general reader would have been better served by a more straightforward piece of expository writing.

JAMES E. VALLE

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PAOLO E. COLETTA and K. JACK BAUER, eds., *United States Navy and Marine Corps Bases, Domestic* (Westport: Greenwood Press, 1985). 6½" × 9½", cloth, xi + 704 pages, appendices. $95.00.

PAOLO E. COLETTA and K. JACK BAUER, eds., *United States Navy and Marine Corps Bases, Foreign* (Westport: Greenwood Press, 1985). 6½" × 9½", cloth, xvi + 459 pages, appendices. $75.00.

Reference works on naval officers, battles, and ships are common, but this is the first such work on the bases which support the naval service. The U.S. Navy

established its first permanent bases in 1800. During the century that followed, other bases, often of a temporary nature, were established to support the squadron navy as it protected and extended American interests around the world. The Spanish-American War led to the building of the first permanent bases beyond the continental United States. The number of such installations grew to about 150 by the end of World War II. Since then the number has declined to about 30, but the remaining bases are vital to the conduct of American military and foreign policy. This quick reference work providing basic information on the hundreds of places employed by the navy and marine corps as bases for varying periods of time is most welcome.

The editors have defined bases broadly enough to include naval stations and facilities and both 'hard' installations (i.e., those under direct American control) and 'soft' ones (i.e., those controlled by the host country). Entries are arranged alphabetically by geographical location and name in two volumes, one devoted to bases in the fifty states and a second to overseas bases, including those located in American overseas territories.

Each entry provides the name of the installation, a brief history of its development (and closing where appropriate), its physical composition, and the functions it performed. Bases which were used for a relatively brief period or which are better described in a group are dealt with in a single essay (e.g., 'Mediterranean, The, U.S. Naval Bases, 1800-1917'). Each entry closes with a bibliography listing sources used. The amount of information provided by individual entries varies widely and is proportional, one suspects, to the quantity and quality of these source materials.

Certain lacunae and the brevity of some entries prevent this work from being considered encyclopedic. Charlestown, Massachusetts, was the site of one of the navy's major nineteenth-century bases, yet there is no independent listing for it (in a similar case an entry for the Brooklyn Navy Yard directs the user to New York), nor is it listed in the index. In the essay on the Boston Navy Yard it is unclear which activities took place in Charlestown and which ones across the river in Boston.

Three appendices provide further access to the entries by listing bases by function, from 'Advance Amphibious Training Bases' to 'Submarine Base and Training Command, U.S. Pacific Fleet'; by geographic area; and by date of establishment. These must be used with caution, as demonstrated by the first three entries in the 'Time Line.' The listing of the Norfolk Naval Shipyard under the year 1767 is highly questionable. If the date assigned is that of the first naval activity, then Portsmouth, New Hampshire, should be listed under 1694 since the entry for that place says that the first of three vessels built for the Royal Navy was launched in that year. The second entry, '1775: Whitehall, N.Y., Naval Base,' implies the existence of a formal installation when it is clear from the entry that none existed. The third listing, '1776: Far Eastern U.S. Naval Bases,' is an obvious error. The fourth listing, '1800: Lisbon, Portugal, U.S. Naval Tenant Base,' points out the lack of consistency in the compiling of the appendices. 'Appendix A: Subject Listing of Bases' has no listing for 'Tenant Bases' and does not list Lisbon under 'Tenant Ports.' Nor does the entry for Lisbon mention any American naval activity at the port until 1865.

These limitations aside, the volumes fill a gap in naval reference works and will be welcomed by historians, though their prices will probably force most people to consult them in libraries.

JAMES C. BRADFORD

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STUART M. FRANK, *Herman Melville's Picture Gallery* (Fairhaven: Edward J. Lefkowicz, Inc., 1986). 9″ × 9¾″, paper, 133 pages, illustrations, bibliography, index. $18.95.

It is seldom that we find anything new to write about as concerns the outline of Herman Melville's classic *Moby Dick,* but Stuart M. Frank, the Director of the Kendall Whaling Museum, has done so in his admirable study of the sources and types of whales and whaling as found in Chapters 55, 56 and 57 of "Moby Dick," called his pictorial chapters. Mr. Frank's study, as printed by Edward J. Lefkowicz, Inc., of Fairhaven, Mass., represents a welcome harvest of the Melville reference to whales throughout these three pictorial chapters. It is an exhaustive compilation and will satisfy the most particular of the Melville scholars.

Of course, the comments which Melville made on the various features of the "less erroneous" pictures of whales, in Chapter 55, to the whales that were "graven by the fishermen themselves," bring substance to the various views selected. These views

range from tradition to Melville's actual experience, from superstition to first hand examination. The voluminous reading of the author shows the extent to which his browsing led him. His extensive knowledge of whaling is best explained by the attention he paid to the thoroughness of his documentation. Melville's attention to detail makes his study a real attempt to classify his own order of things in his approach to the whole subject.

Mr. Frank has planned his book well. The illustrations and identifications are interspersed throughout, and wherever possible the repository where each was obtained is clearly indicated. As the author points out, while the original publications from which the originals were obtained are theoretically in the public domain, reproductions are in the copyright of the repositories of these originals. A list of these places is supplied in the book.

In Part One: "Of the monstrous pictures of whales," in Chapter 55 of "Moby-Dick," Melville is quoted fully, bringing out the "true form of the whale, when in his absolute body the whale is moored alongside the whaleship, so that he can be fairly stepped upon there." From the primal sources of whales, as Melville himself points out, "these pictorial delusions," found in the old sculptures, marble images in temples, the range of illustrations proceeds from "Perseus Descending," by Hogarth, to the Biblical Jonah and the book-binder's whale, "winding like a vine-stalk round the stock of a descending anchor." Even the sober drawings of the whale by the scientific community were explored, including the sketch of a spermaceti whale by Colnett and Lacepede's Greenland whale drawings, and Beale's well-known study.

In discussing Part Two, in which Melville avoids the temptation to enter into any comments on the "less more monstrous stories of them," found in certain books, the better known paintings of Huggins and Beale meet with his approbation and the drawings by Thomas Beale are introduced, followed by Scoresby's remarkable illustrations. What Melville considered the finest of the whaling prints were done by the French artist Ambroise Louis Garneray, and the descriptions of the two whaling scenes justifies the precise description which Melville devotes to them.

Melville had praise for another French artist, Henri Durand-Brager, and this man brought out considerable ability in his painting of a whaler in a South Seas harbor and his whaling scene "in the very heart of Leviathanic life."

In the final chapter (Melville's Chapter 57), the study by Mr. Frank deals with "Whales in paint; in teeth; in wood; in sheet-iron; in stone; in mountains; in stars." He starts off with the Cornelius B. Hulsart print of "A Shoal of Sperm Whale, Off the Island of Hawaii," and "Capturing a Sperm Whale," which was an engraving by John Hill, after a sketch by Hulsart, which were outstanding prints in their time. The "lively sketches of whales and whaling-scenes, graven by the fishermen themselves on sperm whale-teeth, or ladies' busks wrought out of right whale-bone . . . ," which Melville so aptly described, include such outstanding bits of scrimshaw as a Frederick Myrick "Susan's Tooth," Edward Burdett's scenes, "Sentimental and Patriotic" subjects, corset busks, canes and sewing stands, inlaid and trimmed with ivory.

Sperm whale weather vanes, door knockers of whales, and old charts produced through the collaboration of a mathematician and a map publisher, bring to an end this compilation of pictorial Melville. These remind us of Melville's admonition that "Nor when expandingly lifted by your subject, can you fail to trace out great whales in the starry heavens, and boats in pursuit of them."

Stuart Frank has done his subject well. *Herman Melville's Picture Gallery* will prove eminently satisfactory for the scholar and the student of Melville, and provide a pleasant excursion into the realm of all those who enjoy the pleasure of whaling literature.

EDOUARD A. STACKPOLE

Nantucket, Massachusetts

JAMES C. BRADFORD, editor, *Captains of the Old Steam Navy: Makers of the American Naval Tradition, 1840-1880* (Annapolis, Maryland: United States Naval Institute Press, 1986). 9″ × 6″, cloth, xvi + 356 pages, black-and-white illustrations, notes, bibliography, index. $24.95.

This is the second volume in the Naval Institute Press's series of anthologies dealing with famous American naval officers. The first, *Command Under Sail,* was reviewed by the present writer in the Spring 1986 issue of this journal; a third volume, covering the period 1880-1930, is promised.

Most of my comments on the first volume apply to the second. In each case Professor Bradford has as-

sembled a fine collection of biographical sketches by modern historians, who have supplemented the text with excellent notations and bibliographical essays.

The period 1840-1880 is something of a "middle period" in American naval history, having attracted somewhat less attention than have the more glamourous eras before and after. This collection is thus especially welcome. It covers not only the oft-told stories of the Civil War campaigns, but the emergence of the navy as an instrument of overseas diplomacy, the service's adaptation to nineteenth century technology, and the development of the modern professional officer corps.

Realizing that the nineteenth century navy was more than a combat force, Professor Bradford has chosen authors from a variety of historical fields. The story of John Dahlgren and his smoothbore guns is entrusted to Dean K. Allison, an historian of technology, and John C. Schroeder, a diplomatic historian, writes about Matthew Perry. William Stanton, an historian of science, concludes, as historians of science are obligated to do on such occasions, that Matthew Fontaine Maury was skilled in the application of scientific principles but really was not "equipped for calculating analysis." Warren F. Spencer, another specialist in diplomatic history, offers an interesting portrayal of Raphael Semmes as an articulate expert on the laws of commerce warfare—a sea lawyer in the most literal sense. Geoffrey S. Smith, who has published in both scientific and diplomatic history, contributes a critical essay on Charles Wilkes, and Tamara Moser, Melia and Dean C. Allard, historians with the Navy Department, write on David Dixon Porter and Benjamin Isherwood.

Several of the contributors have written on their subjects before. Robert Erwin Johnson and Frederick C. Drake add further thoughts to their earlier biographies of John Rodgers and Robert W. Shufeldt, respectively, and Charles M. Todorich, author of a book on the early days of the Naval Academy, writes on its first superintendent, Franklin Buchanan. John D. Milligan, the late K. Jack Bauer, and William N. Still, whose subjects are Andrew Foote, Samuel F. DuPont, and David Farragut, are well known naval historians specializing in the mid-nineteenth century and the Civil War.

It must be said that this anthology has not quite evaded the traps that so often claim members of its species. Several of the essays, having been written by busy academics, show minor signs of haste in the form of questionable paragraph structure, at least one name transposition, and, in one case, a couple of mysterious parenthetical numbers that apparently were supposed to be excised from a rough draft. In general, however, the book maintains the high standards of scholarship, design, and presentation that we have come to expect from the Naval Institute Press, which routinely publishes some of the industry's handsomest books.

Over the next few years the "Makers of the American Naval Tradition" series undoubtedly will come to be regarded as a basic component of the literature. The bibliographical information will serve as an invaluable primer for all future students of the subject, and the essays themselves will be perceived as an articulate statement of how the profession of naval history was practiced in the 1980s.

JOHN A. TILLEY

East Carolina University
Greenville, North Carolina

LAURA F. SPRAGUE, editor, *Agreeable Situations: Society, Commerce and Art in South Maine 1780-1830* (Boston, MA: Northeastern University Press, 1987) 8½″ × 11″, 289 pages, bibliography, illustrations and index. $45.00 hardback, $24.95 paperback.

Agreeable Situations is a collage of society, commerce and art in southern Maine during 1780-1830, concentrating on the area from Kittery to Portland. This has been accomplished by cataloguing the permanent holdings of four southern Maine historical institutions: The Brick Store Museum, Kennebunk; Maine Historical Society, Portland; Old York Historical Society, York; and York Institute Museum, Saco. Each inventoried item is pictured and carefully described, its history is related, and in many instances there are interesting anecdotes. As an example, a Herculean pitcher bearing the likeness of Commodore Preble, is accompanied by an article covering the battle of Tripoli which describes how Henry Wadsworth was killed.

1780-1830 is one of the most interesting periods in Maine's history. The British had destroyed Falmouth (Portland) in 1775, thus requiring complete reconstruction. Families who made fortunes from shipbuilding and commerce subsequently constructed large, lovely homes and filled them with treasures from all over the

world. Portland's affluence encouraged young artisans to design and create fine furniture, which came into demand not only locally but also in other areas.

In spite of the Embargo of 1807 and the War of 1812, the economy of Maine flourished, especially the textile industry. People poured into the area as a result. Success bred success, and Maine became a state in 1820.

In addition to being a fascinating catalogue, *Agreeable Situations* contains the following five excellent essays that, taken together, make you feel as though you have lived through the era: "Rising Like a Phoenix: Commerce in Southern Maine 1775-1830," by Joyce Butler; "The Appearance of Enterprises and Improvement: Architecture and the Coastal Elite of Southern Maine," by Richard M. Candee; "Fit for a Noble Man: Interiors and the Style of Living in Coastal Maine," by Laura F. Sprague; "Patterns of Patronage in York and Cumberland Counties, 1784-1830," and "From the Fair to the Brave: Spheres of Womanhood in Federal Maine" by Laura F. Sprague.

Earle G. Shettleworth, Jr., Director of the Maine Historic Preservation Society, states that "As a catalogue, as a research tool, as a series of interpretations, this volume offers a challenge to researchers, who have long mined the historical riches of southern New England, to look north beyond the Piscataqua River to Maine. Rarely has such a vein of new ore been struck."

KENNETH G. CADY

Friendship, Maine

L. R. W. BEAVIS, *Passage from Sail to Steam,* edited by Mary Stiles Kline (Bellevue, Washington: Documentary Book Publishers Corporation in cooperation with Vancouver Maritime Museum. Distributed by the University of Washington Press, Seattle and London, 1986). 9″ × 12″, hard cover, xiv + 210 pages, 124 photographs, notes, index. $32.95.

L. R. W. Beavis (1854-1940) went to sea in 1878 after two years aboard the school ship *Conway*. He sailed as apprentice and mate in a variety of British square-riggers on deepwater voyages from the United Kingdom to India and Australia, across the Pacific with coal from New South Wales to California, and in the grain trade from California to English Channel ports. In 1895 he took command of the ship *Micronesia* for a voyage to Melbourne, then from Newcastle, New South Wales to Antofagasta, Chile with coal, and thence with a cargo of nitrate to England. This all ended with a disastrous nitrate fire in the Thames Estuary, and in 1897 Captain Beavis decided to leave sailing vessels and continue his seagoing career in steamers. Until his retirement from the sea in 1930, Captain Beavis sailed in a variety of tramps and cattle boats on the Atlantic, and after moving with his family to Vancouver, British Columbia he served in freighters, surveying vessels, and bay ferries. Of greatest general interest were the years 1921-1924 when he piloted and commanded vessels in the Sea of Okhotsk which were engaged in trading ventures for the Hudson's Bay Company.

The manuscript was written between 1930 and 1938, and was based not only on Captain Beavis's recollections but also on his diaries and ship's journals. He submitted it to a publisher before his death. The publisher expressed interest in it, but required additional editorial work which was never carried out. The manuscript, together with a great collection of some two thousand photographs, was stored by the captain's family until 1979 when his granddaughter brought it to the attention of Mary Stiles Kline, Executive Director of Northwest Seaport in Seattle who eventually undertook the task of editing it for publication.

The narrative is very readable, and contains not only accounts of voyages and ports but also characterizations of captains, officers, and crews of the vessels in which Beavis sailed. While materials of this sort have been published many times before, there is a lively freshness to this narrative which clearly justifies its publication. The chapter on the Siberian venture is probably the most important part of the book for the light which it throws on the activities of the Hudson's Bay Company on the Siberian coast between the overthrow of the Russian imperial government and the firm establishment of Soviet control there.

In the course of transcribing and editing Captain Beavis's manuscript text, Ms. Kline changed it as little as possible, making alterations only where poor grammar or choice of words or disorganization interrupted the flow of the narrative. In the footnotes she has included sections of the original manuscript which she deemed interesting but not particularly relevant. She has also provided new footnotes of her own to amplify or explain the text. These are generally helpful although some are erroneous or incomplete. At some points either the editor has failed to transcribe the

manuscript correctly or the printer has faltered. Thus "q" appears where the letter "g" should be in several words. At one point the printed text reads, "The casting was run down . . ." when the sense of the passage clearly calls for "easting" rather than "casting." On the whole, however, the text is in good order and the footnotes are useful.

The book is handsomely printed, and is lavishly illustrated by photographs, 89 of which are of vessels apparently drawn from Captain Beavis's collection.

This book joins the already crowded shelf of first-hand narratives of life at sea in the closing years of the age of sail. The chapters dealing with the 33 years when Captain Beavis was mainly serving in power-driven vessels includes less familiar material although they are less colorful than the accounts of voyages in the square-riggers. Every such book, however, has something to add to the record of seafaring life and experience, and this is certainly a fine addition to the category.

JOHN HASKELL KEMBLE

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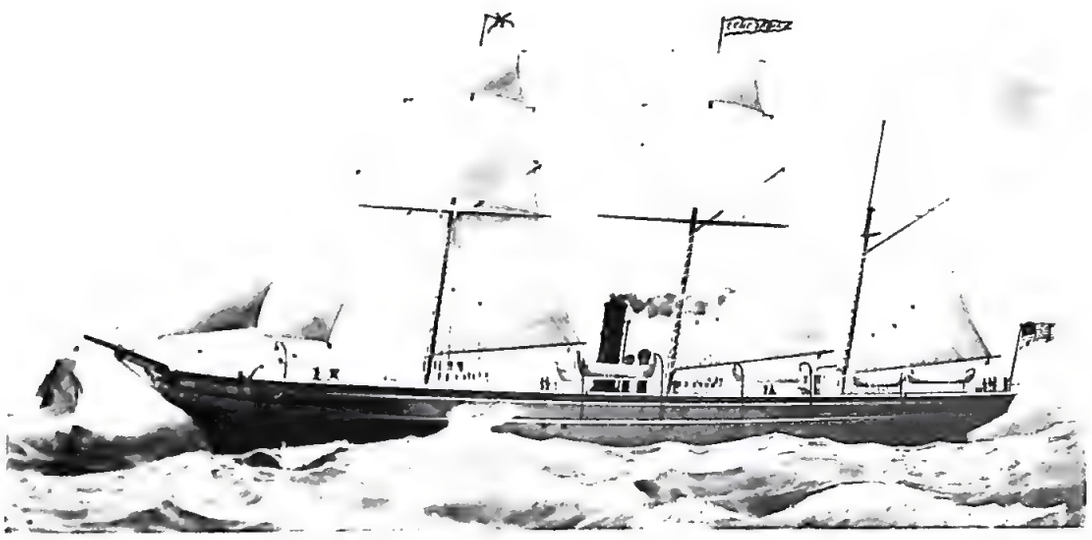

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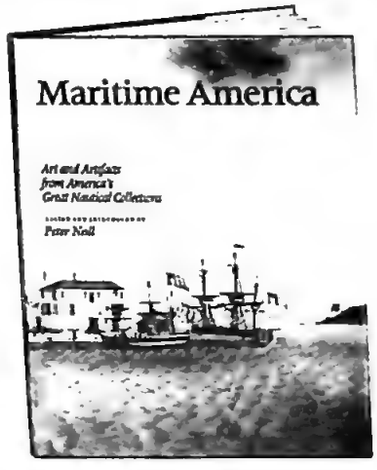

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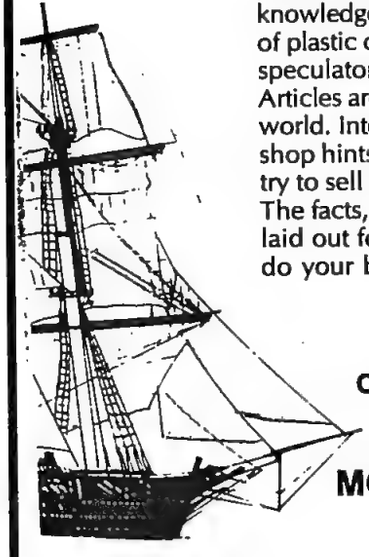

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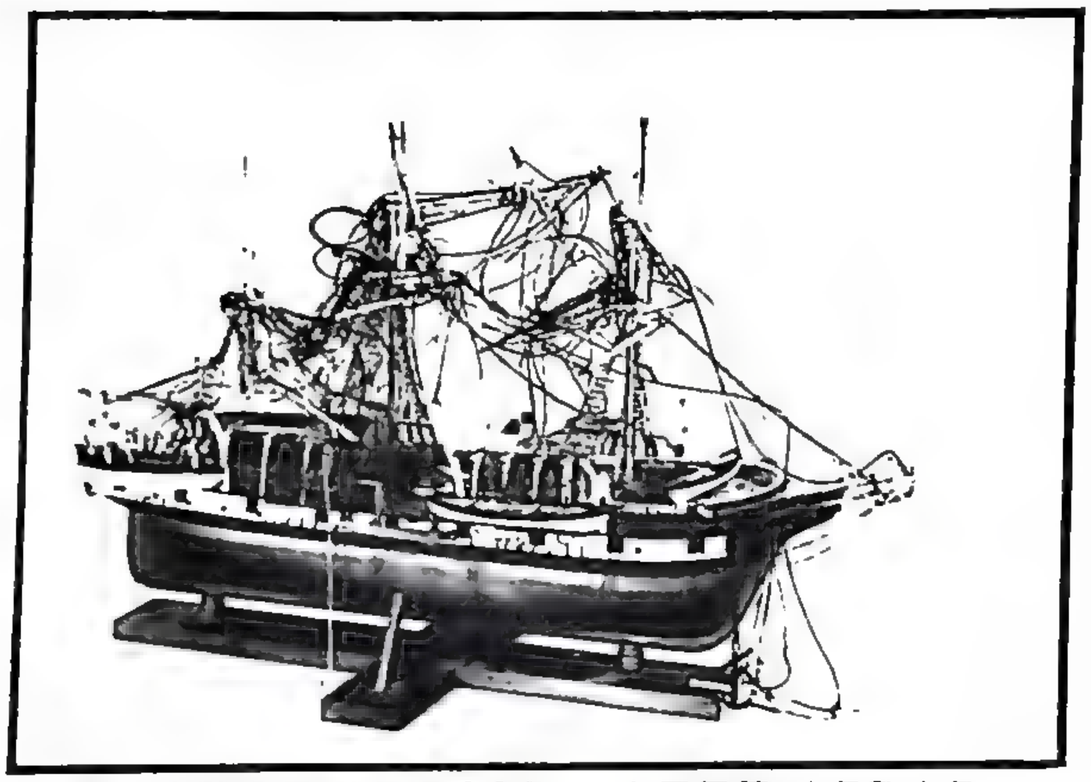

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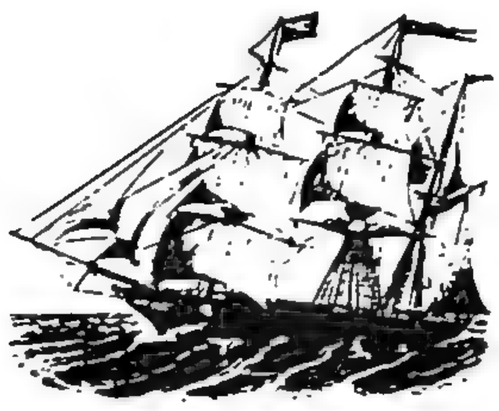

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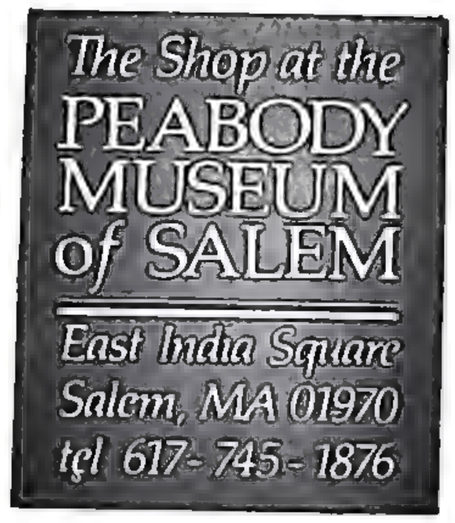

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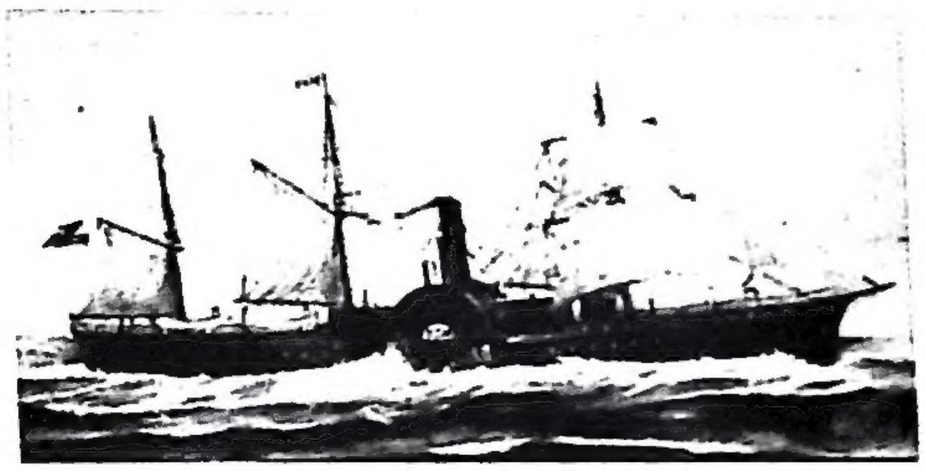

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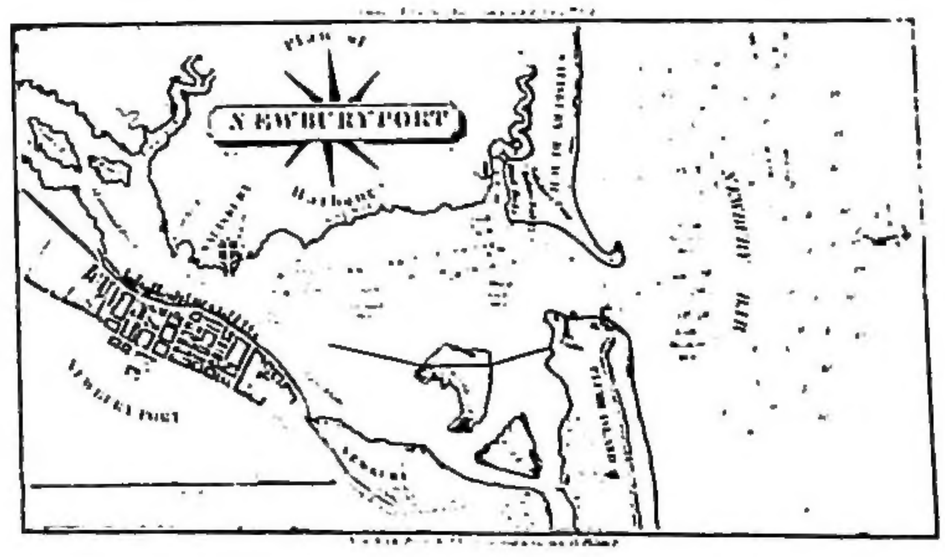

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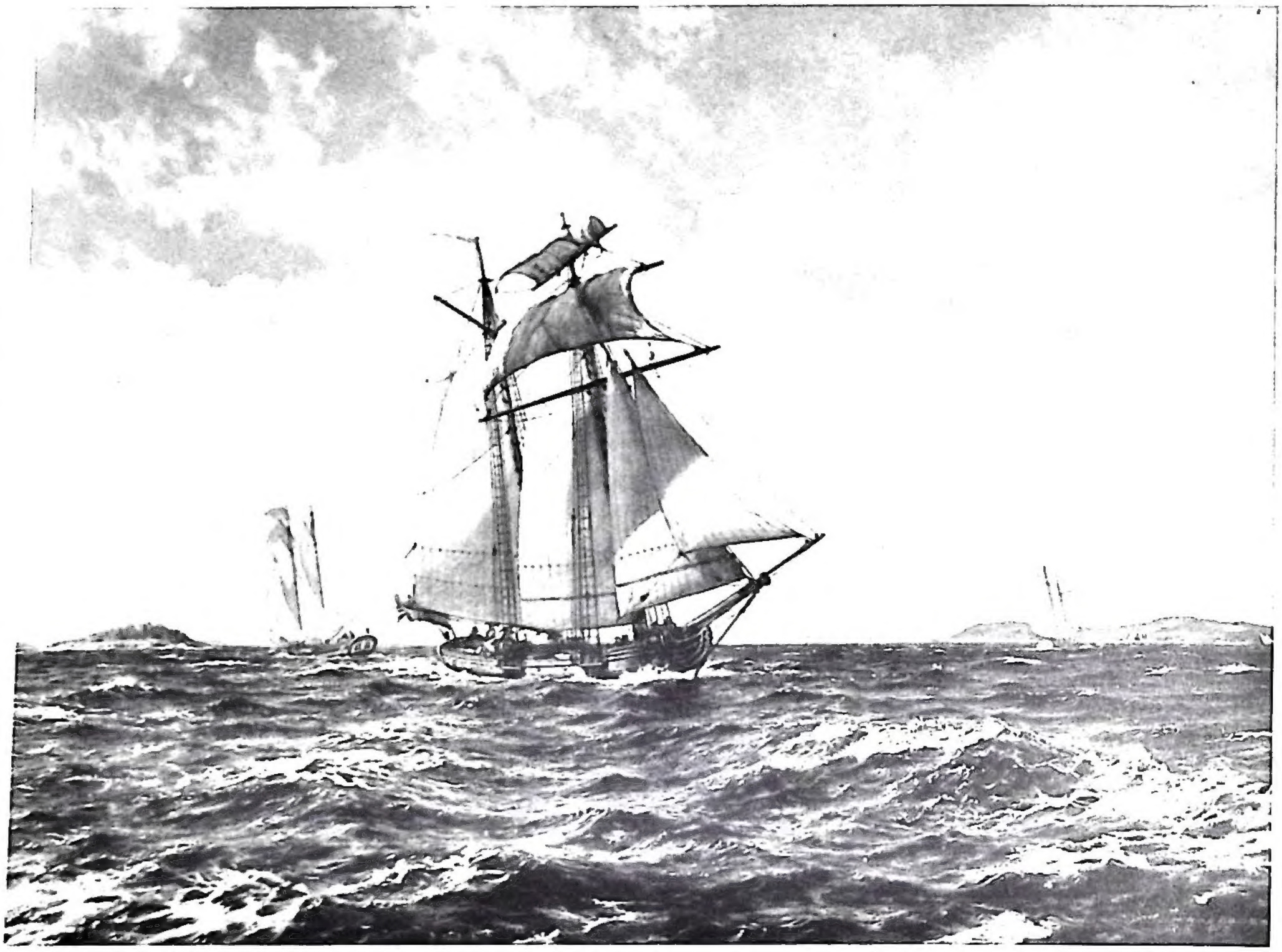

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